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SELECTED CONTRIBUTIONS  
FROM THE PROCEEDINGS  
OF THE  
EFFECTS-BASED APPROACH TO  
OPERATIONS (EBAO) SEMINAR  
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Edited by Frederic Labarre

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**SELECTED CONTRIBUTIONS FROM THE PROCEEDINGS OF THE EBAO  
SEMINAR**

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## TABLE OF CONTENTS

INTRODUCTION .....	4
THE DANISH COMPREHENSIVE APPROACH .....	5
EFFECTS-BASED WARFARE: A CRITICAL VIEW.....	11
EBAO – THE FINNISH APPROACH.....	39
ANALYSIS OF THE BRITISH APPROACH TO EBAO .....	45

## **INTRODUCTION**

**Frederic Labarre**

What are Effects-Based Approaches to Operations? What is a Comprehensive Approach? What is the “whole-of-government” perspective? Is it that much different from the “maximum exertion of strength” that Carl von Clausewitz refers to? If it is not, then using the total means at the disposal of the state is shorthand for this other quote from Clausewitz, which should guide operations in the field: “the maximum use of force is in no way incompatible with the simultaneous use of the intellect.”

The principal aim of this seminar was to enhance knowledge, and if possible, come nearer to a common understanding of the term EBAO (or CA, as the case may be). As I have just suggested, EBAO and comprehensive approaches are constructions of the imagination that remain heavily contested. As we approach these terms, their meanings and implications, I encourage you all, in your presentations and in your questions, and certainly tomorrow during the round table to make your views count in this debate.

Too often we dismiss such conceptual notions as “just words”. The EBAO seminar is a testimony of the Baltic Defence College’s desire to attain and maintain currency with the ideas that will shape the battlefield – and hopefully the peace – of tomorrow, the success of which so much depends for our security. As a military education institution striving for excellence, the Baltic Defence College must generate stimulating thinking on such issues, and this is also why we are extremely grateful for the presence of such distinguished guests.

EBAO is an ill-defined concept, and this major shortcoming has effectively cancelled any hope of future elaboration, as per a recent message from USJCOM and ACT chairman Gen. James Mattis (USMC). Nevertheless, the push performed since 2001 by USJFCOM has forced many NATO and PfP allies and partners to revise their strategic and doctrinal concepts. For many nations, “effects-based” is now routine parlance, even if it is now being abandoned by NATO. This does not mean that it was a waste of time.

My personal interest in EBAO and CA has to do in how the military may apply these novel planning notions effectively, and yet produce results that make stability and reconstruction operations by civilian actors more difficult. Whether this is a question of having civilian consultations during the military planning of operations or having operations more connected (not coordinated) with the stated political aims as achieved through reconstruction (rather than coercion) is open for debate. There is an operational and conceptual gap between the moment when military operations conclude (even if they are effects based or comprehensive in their approach) and the time that stability and reconstruction operations take place.

The Baltic Defence College is always striving to be at the forefront of innovations in strategic thinking, and the collection of writings here answers this desire. Whether EBAO is a good concept or not is up to the reader. What matters is exercising our minds for the possibility of change, and sustaining the ability to recognise when it is needed and when it is not. In this sense, this document is a contribution to strategic thinking flexibility.

## **THE DANISH COMPREHENSIVE APPROACH**

**LGen Ebbe Rosgaard (DK AF)**

This paper will give a brief overview of the Danish “Comprehensive Approach”. This approach (not to say concept) was formerly called “Concerted Action and Planning” (CAP) which does not necessarily mean that the coordination was emphasized more than inclusiveness.

Concerted Planning and Action, Whole-of-Government, Comprehensive Approach (CA) are really the same concept with different names. Ever since the end of the Cold War, the variety of missions in which armed forces have been employed have triggered the need to re-conceptualise crisis management, especially at the theatre and operational levels.

Efforts to widen the roles of the armed forces in “non-traditional” (but now normal) missions and include new actors within these roles have been commonplace in NATO and EU members’ forces. Denmark is no exception. Since 2004 especially, the Danish Armed Forces have looked at the optimization of coordinated national efforts as a priority.

The Comprehensive Approach is an integral part of the Danish Defence Agreement.<sup>1</sup> Clearly it stands a good chance of being part of the work of the Danish Defence Commission which is busy shaping the “Defence Agreement” for 2010 and beyond.<sup>2</sup>

It must be said that both nationally and internationally the CA is based on rather weak theoretical foundations, as evidenced by the lack of clarity and definition of concepts, their sometimes changing nature, and the occasional disputes their opacity creates between the agencies trying to implement them.

These discrepancies have been triggered by attempts at experimentation such as Allied Command Transformation’s Multinational Experiment 5 (MNE5) while simultaneously other nations are lead by USJFCOM in concept development. Rather, refinements to the CA must take place by challenging concepts in the light of actual experience gained recently in Kosovo, Afghanistan and Iraq. The first step is to identify lessons susceptible to be transformed into transferable knowledge. Lessons identified into lessons learned, if you will. In Denmark, functional specialists from various government agencies and institutions carry out this task in cooperation with Danish NGOs within the purview of a “Letter of Working Relationship”.

In the field, the management of the CA, that is, the implementation of the lessons learned depends on effective cooperation between the relevant military and civilian actors. Despite the fact that the intentions of CA cover cooperation between a wide range of governmental and non-governmental departments which covers full the range of activities that need to be performed in the mission area, the systematisation of “national” mission planning is a long way off.

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<sup>1</sup> It is the agreement, between the majority of political parties in the Danish Parliament, giving the budget, procurement plans, future structure and organisation of the Danish Armed Forces for a 5 year period.

<sup>2</sup> The Commission is established to describe the security developments from a Danish point of view for over the next 25 years. In this perspective The Commission will specifically take a closer look on the first 3 – 5 years period (2010 – 2014) and give recommendations to the development of the Danish Armed Forces. Based on this, the Government will put forward a proposal for a new Defence Agreement to the political parties in the parliament.

The reasons for such pessimism have to do with the relative novelty of the CA, and the lack of tradition of service in conflict areas for some agencies. In addition, one cannot discount, unfortunately, the ill-effects of institutional rivalry, the jealous preservation of departmental budgets and influence over policy. Finally, other factors conspire against the systematisation of national planning; diverging departmental and institutional priorities, national legislation and sometimes agency principles (such as Red Cross impartiality, for example) remain important obstacles.

The Comprehensive Approach, therefore, combines the civilian (diplomatic, humanitarian and civil society) and military roles within the ebbing spectrum of conflict, from combat to reconstruction by way of security and stability provision. The level of involvement of the coercive agents will be commensurate with the degree of insecurity in theatre. Physical security as a term covers a situation with none or very little application of lethal force, and presupposes some degree of freedom of movement and law and order.

Maintaining those conditions mean that the military either by its mere presence or the actual use of force has little leisure to devote its capabilities to the task of stabilisation and reconstruction. Only when physical security is inadequate may military units be compelled to take responsibility for the stabilisation of the local conditions. Otherwise, military units should yield these tasks to civilian agencies such as humanitarian organizations, NGOs, etc. It must be said that it is the lack of physical security in the first place that precludes civilian stabilisation and reconstruction (S&R) participation in the first place. In the best case scenario, military and civilian partners operate in a coordinated fashion within their respective disciplines and expertise.

The CA is a conceptual evolution stemming from the Effects-Based Approach to Operations (EBAO). The effects-based approach is a component of the CA and is usually associated precisely with military activities.

Before 2004, Danish (and other nations') national thinking about operations aimed at isolated targets without regards to unintended consequences or undesired effects on parallel lines of action of other theatre actors. Often, different actions were aimed at specific functional (or agency) goals without consideration for mutual support and coordination, making the national effort less efficient, that is, less cost- and resource-effective. As a result, it becomes impossible to discern a "national" end-state among the many "agency" end-states. Many actors end up working against varying success criteria and not necessarily in line with national goals. The Comprehensive Approach, on the other hand, coordinates different effects to be employed and ultimately aimed at one common end-state for all categories of actors in theatre.

This approach means that the effects of certain lines of action have not only been identified as desirable for the line of action that seeks it (say, the diplomatic actor), but it also means that those effects have been accepted by other lines of action as supporting their own efforts. (For example, de-mining may take place not only in service of military convoys, but in expectation of imminent road reconstruction by civilian firms, essential also for the overall diplomatic goal of trade facilitation, deemed essential for reducing unemployment which otherwise provides pools of disenfranchised and idle individuals susceptible to recruitment by radicals).

Thinking in this way optimises the allocation and designation of military and civilian resources to be deployed in the crisis area, which is a fundamental principle of effective problem resolution. During the last several years, the ferocity of the environment in which humanitarian, development and reconstruction efforts had to be deployed gave the impression that the military capabilities could deal with most of these problems. This is a grave misunderstanding. While the armed forces may have some capacity, engineering and logistical units are not equipped or manned adequately enough to do more than serve the units or regiments to which they are attached. There is also the fact that soldiers, especially in volunteer armed forces, do not have craftman education. We cannot expect individuals to know about road repair, police techniques, plumbing, public administration, agriculture and mechanical engineering. This is not to say that individuals in general should not aim at personal betterment through the acquisition of new skills. Rather, it is unreasonable to expect or demand of a military and training education system to shape individuals into renaissance men and women when experts at the management of violence are called for. The reality is that the majority of challenges can only be met by non-military actors. The civilian reconstruction may be lead by a military commander, but that does not mean that military capacities will follow to solve most problems.

Danish international engagement in crisis areas follows a coordinated model of action between the Ministry of Defence (MOD), the Defence Command Denmark and the Danish Emergency Management Agency (DEMA), and may include Home Guards with some functional specialists. Intervention initially concerns a rather substantial deployment of military forces. The intermediate aim is to contribute to the stability of the area. As physical security improves, force deployment can be reduced, and cooperation with non-military actors can commence. Let it be pointed that non-military actors are acknowledged as present before, during and after the crisis or conflict.

The difference between CA and earlier approaches is that CA is an expression of functional complementarity, whereas earlier methods were mostly a matter of chronological complementarity. In the latter approach, the military actors entered the crisis area, imposed peace, maintained fragile cease-fires, and left the field to humanitarian agencies, police action, as “peace enforcement” yielded to “peacekeeping/peace support” and ultimately to “peacebuilding” actors, which would be mostly civilians. The gravity and complexity of today’s crises, the strategic imperative of avoiding adversaries’ throwing discredit on the international community’s efforts precludes this. Despite the difficulties of coordination between the professional and sometimes national cultures of the CA actors, symbiotic and complementary mutually-supportive efforts have improved greatly since 2004.

### **Case Study: Denmark in Afghanistan**

The Danish security and S&R efforts are based on concerted military and civilian action. This initiative is complemented by an educational effort performed jointly with the United Kingdom, and economic effort targeting the production of opium is lead by the Ministry of Foreign Affairs.

The general framework of cooperation of the current Danish CA in Afghanistan comprises a well-functioning relationship between national authorities and the small diplomatic contingent in our Kabul Embassy. Here it must be said that the accreditation of a Danish defence attaché to Kabul was a strategic decision of great significance on the impact

of the CA at all levels. The Embassy is now responsible with coordination of effort with coalition partners.

Close to the mission area, Denmark has embedded civilian reconstruction development advisors; one in Feyzabad and three in Helmand, with two in Lashkar Gar and one in Gereshk. They are responsible for “mission-close” coordination and local projects. Formalised lines of communication and proper “institutional memory” ensures the success of multi-year planning, rational strategic and local cooperation, and ultimately facilitates indigenous ownership of projects despite the frequent rotation of personnel every 6-12 months. Denmark’s annual financial contribution is 50 million USD (34 million EU), of which 10 million USD are administered by NGOs.

### **The proper role of actors**

The present Danish conceptual idea has resulted in close and coordinated cooperation between Danish military units, the Danish MFA and to a certain degree coalition partners. However successful this cooperation may be, many areas could benefit from improvements.

We know that S&R is vital to the long-term social and structural rebuilding of a nation, but the military can only solve the crisis, not rebuild a society. Many S&R efforts must be initiated in parallel to or immediately after military action, but they cannot be undertaken by the military actors.

It is my belief that if military units are transformed into semi-civilian reconstruction units, they will lose the ability of conducting military operations while never being able to be fully able to perform S&R. We have hard lessons from “mission creep” in the Balkans; “profession creep” would have even worse consequences. We cannot ask someone in such dangerous environments to be fully proficient with a shovel one minute and with a rifle the next. Doing so would risk the overall skill of our armed forces while simultaneously providing no guarantee to the success of S&R efforts on which so much depends. Neither can civilian efforts be left unattended. As the security of Denmark (and other allies) is equated with S&R success in Afghanistan, even civilian efforts by NGOs must fall within national priorities.

### **The Stages of a Comprehensive Approach**

The Comprehensive Approach is not only a matter of inclusiveness of actors. It is also about comprehensive analysis, planning, execution and measurement of effectiveness. Ensuring this throughout the process of implementation should enable a more effective and efficient deployment and employment of precious national resources.

The Comprehensive Approach embraces the “Effects-Based Approach to Operations” (EBAO), and should be used to improve the coherence of response to future conflict and crises. This requires a fundamental and difficult shift in thinking from many actors, but in time, they will see that this perceived “administrative burden” of the CA in fact carries several advantages:



- A more thorough comprehensive analysis opens the door to a better understanding of the roots of conflict, and consequently, better-informed risk assessment and decision-making.
- Wider participation and coordination between government departments in the analysis and planning phases should lead to more efficient achievement of objectives and the realisation of desired effects.
- Wider partnership means additional and complementary intelligence skills and assets prior to and during operations;
- Developing communities of interest to which the MOD can contribute and from which it can also draw should generate opportunities for greater efficiency and effectiveness;
- Comprehensive analysis is more likely to reveal greater alternative courses of action stemming from the greater variety of actors at disposal, while comprehensive planning allows better use of resources through better tailoring and targeting of options for the military;
- The MOD's exposure to a conflict can be progressively minimized if the implementation of CA stimulates conflict prevention and alleviation in theatre. At the same time, other government departments learn to work together with NGOs and IOs, and should allow, when physical security conditions are ripe, a smooth transition of responsibility from the military actor to the civilians.

The CA brings more visibility to non-military actors than ever before, contributing to a less coercive S&R environment. As understanding of CA increases, military deployment in complex environments, especially those involving operations among populated areas should increase the prospect of success. The routinization of contacts between Danish forces and other agencies can only contribute to crisis and emergency resolution, as it will expose military personnel to a greater variety of skills and methods in theatre from which they can learn.

In brief, formalised cooperation increases the odds of success. Single coordinating instances are needed to ensure the unicity of effort from strategy-making, to tasking, to planning. National planning should include as many government ministries, departments, agencies, NGOs and IOs as are available, commonly committed to a collective plan of action over a realistic timeline. Such non-military actors should be introduced as early as it is safe to do so in theatre. These lessons identified must be expanded and applied at the multinational analysis and planning level also.

## **Conclusion**

“Through their ability to fight and win, the Armed Forces promote peace and democracy throughout the world and security in Denmark”.

This is the newly developed mission statement of the Danish Armed Forces and one that in my view underscores the focus on our core task and competency fighting and winning.

There is an interesting dualism in these words that illustrates the complexity of Denmark's current missions. We fight to win but while fighting often constitutes a necessary component of winning it is rarely sufficient. There is a significant difference between winning a battle and winning the war – not least in the types of operations we are engaged in today.

In the Upper Gereshk Valley in Southern Afghanistan, Danish forces regularly engage Opposing Military Forces. We fight and we win our fights. This is all and good of course, but not a sufficient factor for winning the war.

Winning the war requires stable, well-functioning and legitimate Afghan governance institutions, with power derived from the people. NATO-forces are thus not in Afghanistan to win hearts and minds, but to enable legitimate Afghan authorities to do so. From a military point of view this is done by securing a safe and stable environment and by not using excessive force in doing so. In this way we create a condition conducive to the further development of governance structures.

## **EFFECTS-BASED WARFARE: A CRITICAL VIEW**

**Dr. Milan Vego**

The effects-based approach is a spin-off of network-centric warfare (NCW). Hence, many of its premises are largely unproven, if not outright false. Proponents of NCW and effects-based approach to operations (EBAO) (formerly also called EBO-effects-based operations) consider war essentially as a business. They do not share the Clausewitzian views of the nature of war. They have embraced a deeply flawed systems approach for assessing the situation and identifying centers of gravity. The effects-based approach is also heavily dependent on various mathematical methods for predicting and measuring effects. This increasing trend toward using various metrics to assess essentially unquantifiable aspects of warfare only further reinforces the unrealistic views of many that warfare is a science rather than both an art and a science. EBAO proponents also claim that their new concept is based on the tenets of operational warfare. However, nothing could be further from the truth. The EBAO is the antithesis of operational thinking and practice. Various operational terms are used as ornaments rather than a way of articulating their true meaning. To make the situation worse, various well-understood and commonly accepted terms are redefined to justify an emphasis on effects in lieu of objectives and tasks.

The nature of strategic targets has changed little, and the likelihood of strategic success based on new weapons seems dubious. There is a fundamental difference between military efficiency and military effectiveness. The assertion that effects-based operational and control warfare has ushered in a new era in warfare defies history and theory, and misreads the changes technology offers. EBAO advocates misread the trend in increased lethality, as if enemies will not be able to react to the use of stealth and precision weapons. The effects-based warfare will always contain a human dimension that will introduce risk and error and ultimately limit the effectiveness of technology.<sup>3</sup> Targeting for effects has generally been highly successful, but at the tactical level of war and in attacking system like structures such as maritime or land transportation and electricity grids. In today's environment, it is also applicable in attacking the enemy's computer networks. The application of this targeteering approach to warfare at the operational and strategic levels has invariably led to wars of attrition, not decisive warfare.

### **What is EBAO?**

There is no commonly agreed definition of what EBAO really is. In one definition, EBAO is described as operations planned, executed, assessed, and adapted based on a holistic understanding of the operational environment in order to influence or change system behavior or capabilities using the integrated application of selected instruments of power to achieve directed policy aims.<sup>4</sup> At the roots of EBAO is the purported interrelationship between data, information, and knowledge and the capacity for reliable historical prophecy that they

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<sup>3</sup> Gary H. Cheek, "Effects-Based Operations: The End of Dominant Maneuver," in *Transformation Concepts for National Security in the 21st Century*, (Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, September 2002), pp. 83, 85, 88, 79.

<sup>4</sup> The Joint Warfighting Center, USJFCOM, Pamphlet 7: *Operational Implications of Effects-based Operations (EBO)*, 17 November 2004, pp. 2, 4.

presumably deliver.<sup>5</sup> Proponents contend that EBAO is not primarily military in nature because it can involve nonmilitary actions, such as financial, law enforcement, or covert activities. It can be applied across the entire range of operations from humanitarian relief to global nuclear war. EBAO uses “various national instruments to preempt or mitigate the detrimental effects of a crisis, and if necessary to wage full-scale extended diplomatic and military campaigns.”<sup>6</sup>

By primarily relying on one’s knowledge, precision, speed, and agility, EBAO aims to degrade the ability of the enemy’s decision makers to take coherent action. The leading advocates assert that EBAO provides commanders and planners with a new potential for attacking the elements of the enemy’s will, thereby directly avoiding, or at least diminishing, one’s reliance on sheer physical destruction.<sup>7</sup> In their view, the traditional preference for mass and momentum is no longer necessary. They envision lighter, nimbler forces, exploiting the cognitive and operational benefits of a robust digital network, accelerating computational capability and pervasive information-sharing to simultaneously mass the effects of dispersed platforms and thus to ensure favorable outcomes with newfound precision and economy.

### **The origins**

The roots of EBAO can be traced to the ideas of the early airpower advocates in the 1920s and the theories and practice of strategic bombing in World War II. Hence, the claims of some leading proponents of information warfare that EBAO is actually a spin-off of network-centric warfare (NCW) and that it cannot exist without NCW are simply false.<sup>8</sup> Some EBAO proponents go so far as to claim that Napoleon I intuitively applied effects-based thinking in planning his campaigns.<sup>9</sup> This is a gross distortion because Napoleon I was the leading practitioner of the objective-based warfare. Effects-based warfare is essentially based on historic airpower theory combined with the recent advance in airpower technology that seemingly promises the vindication of strategic bombing.<sup>10</sup>

In the U.S. military, the effects-based approach has its roots in the theories developed by the instructors of the U.S. Army Air Corps Tactical School (ACTS) in the interwar years. The intent was to use a systemic 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 the fight. This early systems approach emphasized inducing pressure on related systems in order to influence the enemy. By 1939, the prevalent view at ACTS was that such attacks, focused on systemic vulnerabilities, would result in the greatest cumulative effect on enemy systems.<sup>11</sup> This systems approach was extensively used during World War II in the strategic bombing of Germany, German-occupied Europe, and Japan. The actual results were far below the expectations of its proponents and the efforts in terms of materiel and time expended. Germany’s industrial infrastructure proved resilient, immensely adaptable, and civilian morale did not collapse as widely anticipated by the airpower proponents. Some five

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<sup>5</sup> Ralph E. Giffin and Darryn J. Reid, *A Woven Web of Guesses, Canto Two: Network Centric Warfare and Myth of Inductivism*, (Washington, DC: National Defense University, June, 8th International Command and Control Research & Technology, Symposium, June 2003), p. 6.

<sup>6</sup> Tom McDaniel, “Effects-Based Operations (EBO): The Next American Way of War?” in *A Common Perspective*, May 2004 (Norfolk, VA: U.S. Joint Forces Command Joint Warfighting Center Doctrine and Education Group’s Newsletter), p. 15.

<sup>7</sup> Arthur K. Cebrowski, *Military Transformation Strategic Approach* (Washington, DC: Office of Force Transformation, December 2003), p. 34.

<sup>8</sup> Ibid., “Cebrowski Speech to Network-Centric Warfare Conference, 22 January 2003.”

<sup>9</sup> J.P. Hunerwadel, *The Effects-Based Approach to Operations. Questions and Answers*, *Air & Space Power Journal*, Spring 2006, <http://www.airpower.maxwell.af.mil/airchronicles/api/api06/spr06/hunerwadel.html>, pp. 7-8.

<sup>10</sup> Cheek, “Effects-Based Operations: The End of Dominant Maneuver” in *Transformation Concepts for National Security in the 21st Century*, p. 77.

<sup>11</sup> Steven M. Leonard, “The Elusive Silver Bullet: Effects in Army Operations,” unpublished manuscript, 27 March 2007, p. 3.

years of strategic bombing of Germany destroyed entire cities, killed hundreds of thousands of civilians, curtailed industrial output, and crippled transportation nodes. Yet despite the enormous effect, such effect-based operations failed to render a strategic decision.<sup>12</sup>

EBAO proponents explain that the impetus toward an effects-based approach came in the aftermath of Vietnam when, supposedly, the U.S. military emphasized the need to link the objectives at all levels of war—from the national political level to the tactical—in a logical and causal chain. In their interpretation, this outcome-based or strategy-to-task approach became the basis for U.S. joint planning.<sup>13</sup> What they do not say is that such an approach was adopted because of the revival of operational art in the U.S. Army and then in the joint community in the late 1970s and early 1980s. The real reason for the eventual adoption of the effects-based approach was the U.S. Air Force's firm belief that its targeteering approach to warfare could somehow be applied at all levels of war. Airpower proponents asserted that advances in information technologies and the precision and lethality of weapons allowed the use of those weapons against complex systems and in a way that was more sophisticated. Another reason for the reemergence of the effects-based approach was the political and social pressures to reduce the costs of military operations and wage war with the fewest losses, in terms of human lives, for the friendly (and often also the enemy) side.<sup>14</sup> Such beliefs gained increasing influence, not only within the U.S. Air Force but also among the highest political and military leadership.

The intellectual foundation of effects-based warfare<sup>15</sup> was provided by the writings of Col. John Warden III, U.S. Air Force, in 1993 and by his theory of strategic paralysis. Warden depicted the enemy as a system of systems.<sup>16</sup> He also pointed out the relative nature of effects within the enemy system.<sup>17</sup> Afterward, the U.S. Air Force gradually embraced Warden's so-called Five-Ring model, which depicted the enemy's system as consisting of five concentric and interrelated rings. The most important was the inner ring—the enemy leadership. In Warden's view, strategies of annihilation and attrition rely on sequential, individual target destruction as the ultimate method of success and measure of progress.<sup>18</sup>

Proponents assert that EBAO offers a much more effective use of one's military sources of power. Supposedly, faster strategic deployment combined with a smaller force will result in quicker and less costly victories.<sup>19</sup> They also claim that EBAO is focused on obtaining a desired strategic outcome or "effect" on the enemy through application of the full range of military and nonmilitary capabilities at the tactical, operational, and strategic levels. EBAO advocates firmly believe that desired effects will be created in order to bring about a change in the "adversary's behaviour."<sup>20</sup>

## **Objective- vs. Effects-Based warfare**

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<sup>12</sup> Cheek, "Effects-Based Operations: The End of Dominant Maneuver" in *Transformation Concepts for National Security in the 21st Century*, p. 82.

<sup>13</sup> Hunerwadel, *The Effects-Based Approach to Operations. Questions and Answers*, p. 3.

<sup>14</sup> *Ibid.*, p. 3.

<sup>15</sup> Effects-based warfare is defined as the application of armed conflict to achieve desired strategic outcomes through the effects of military force; *USJFCOM Dictionary*.

<sup>16</sup> Cheek, "Effects-Based Operations: The End of Dominant Maneuver," in *Transformation Concepts for National Security in the 21st Century*, p. 74.

<sup>17</sup> Leonard, "The Elusive Silver Bullet: Effects in Army Operations," pp. 3-4.

<sup>18</sup> David A. Deptula, *Effects-Based Operations: Change in the Nature of Warfare* (Washington, DC: 2001), p. 18.

<sup>19</sup> Richard Hart Sinnreich, "An Operating Concept in Search of Modesty," *Lawton (OK) Constitution*, 6 July 2003, p. 4.

<sup>20</sup> J9 Joint Futures Lab, *A Concept for Rapid Decisive Operations*, RDO Whitepaper Version 2.0 (Norfolk, VA: U.S. Joint Forces Command, Coordinating Draft), p. 6.

Traditionally, objective-based warfare directly or indirectly creates the situation it seeks. In contrast, the effects-based approach is aimed to exert pressure and thereby convince the enemy to change his intentions and behavior. Carl von Clausewitz pointed out that war is an act to compel the enemy to do one's will. If one relies on effects as the primary or exclusive means of coercing or persuading the enemy, the final decision to fight or not to fight is left in the enemy's hands. This is perhaps the single most critical difference between effects-based and objective-based warfare. Experience conclusively shows that close combat is the final arbiter of war; it combines ground maneuver with firepower to render the enemy's reaction ineffective and eventually drive him into defeat, that is, it compels the enemy to do one's will. In contrast, effects-based warfare is "fleeting, impersonal in nature and from the enemy perspective indiscriminate." It leaves the decision entirely with the enemy.<sup>21</sup> For example, the Israelis tried to use EBAO against Hezbollah's "system" in July 2006. Their intent was to generate a feeling of distress among the top Hezbollah leadership. This, in turn, would force a reassessment of the cost and benefits and eventually cause the leadership to conclude that it had to remove the missile threat to Israel. In short, the Israelis hoped to prompt their enemies to take action that would serve Israel's purpose. EBAO gives too much say to the enemy as to when to stop fighting and acknowledge defeat. This is just the opposite of objective-based warfare, where one relies primarily on one's own decisions and action to force the enemy to cease hostilities. While the effects-based approach can shape the battlefield, a new reality can only be created by applying one's power most directly, as in the removal of the Iraqi forces from Kuwait in 1991.<sup>22</sup>

### **Objectives vs. Effects**

In generic terms, an effect is defined as an event that follows immediately from an antecedent called the cause. An effect is a result, consequence, or outcome of a certain action. In military terms, it is the physical, functional, or psychological outcome that results from a specific military or non-military action. Effects refer to the full range of outcomes, events, or consequences of actions that can be derived from any instrument of national power: economic, military, diplomatic, or informational. They occur across the spectrum of conflict, from peace to major theater war, and at all levels, from the strategic down to the lowest tactical level.

EBAO proponents have largely succeeded in redefining the term "objectives" and its link with tasks. They use the terms aims, goals, and objectives interchangeably and alternately, as if they mean the same thing. One of the most important tenets of operational warfare is to have a firm and unwavering focus on the military objective to be accomplished. Almost all aspects of operational warfare are related, either directly or indirectly, to the respective military objective to be accomplished. Therefore, reducing the objective's importance or arbitrarily changing its very content reduces warfare to simply firing at selected targets or target sets. It would ultimately lead not only to the elimination of operational art but also to the tacticization of both policy and strategy. In fact, this negative trend is well under way in the U.S. military today.

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<sup>21</sup> Cheek, "Effects-Based Operations: The End of Dominant Maneuver" in *Transformation Concepts for National Security in the 21st Century*, pp. 84-85.

<sup>22</sup> Ron Tira, *The Limitations of Standoff Firepower-Based Operations: On Standoff Warfare, Maneuver, and Decision* (Tel Aviv: Institute for National Strategic Studies, March 2007), p. 24.

In contrast to objectives and tasks, effects are ambiguous and amorphous. Because of their inherent lack of specificity, they—like aims and goals—cannot serve as the basis for military planning and execution. For instance, the effects to be attained cannot be used as a basis for planning when one intends to seize some geographic location (e.g., the enemy capital, island, or part or all of the enemy’s territory). Effects also do not have actions associated with objectives, such as destroy, neutralize, annihilate, defend, control, seize, capture, obtain, and maintain. These actions, in combination with tasks, are reliable indicators of whether one’s actions are unfolding as planned, how far one has to go to accomplish a given objective, and whether that objective is ultimately actually accomplished.

Unlike objectives and tasks, effects to be generated are inherently based on certain assumptions that might be correct or erroneous. One’s worst mistake is to consider assumptions as certainties instead of probabilities, or to refuse to change or abandon assumptions in the face of the true facts of the situation. Historically, correct knowledge of how to generate a desired effect has been insufficient; the actual results usually fall short of expectations. Even when the desired effects are objectively measurable, commanders may not be sufficiently attuned to the assessment process to act on the knowledge.<sup>23</sup>

EBAO proponents explain that the first step is to determine objectives, and the next is to determine the effects necessary to accomplish the objectives. The last step is to determine tasks, variously explained as actions to generate effects or as directing friendly actions (see Figure 1).<sup>24</sup> To make room for effects, EBAO proponents have arbitrarily changed the very meaning of the term military objective and its constituent tasks. Traditionally, a military objective is very specific and hence greatly differs from one’s aims or goals. Without that specificity, the military planning simply cannot be effectively conducted. A military objective can be tactical, operational, or strategic in its scale. The scope of the given military situation is directly related to the scale of the respective military objective.

EBAO advocates have watered down the importance of the military objective by making it more abstract and ambiguous in nature. No distinctions are made among objectives, or, if they are made, they are improperly explained. For example, British doctrine describes the strategic objective as an integral part of the desired strategic end state realized through the aggregation of one or a number of strategic effects. The operational objective is defined as a constituent of the desired operational end state realized through the achievement of one or more “operational effects.” The military operational end state is, in turn, described as the desired military situation derived from strategic direction, taking into account the end state and objectives of the other instruments of power.<sup>25</sup> Note that operational objectives are replaced by “operational effects.” U.S. joint doctrine goes so far as to equate the objective with the “specific targets of the action taken” and to illustrate it as definite terrain features that should be seized or held.<sup>26</sup> There are also some views that equate an objective to a “joint activity.”<sup>27</sup> In short, one of the key elements of operational art, linking objectives across the levels of war, has been eviscerated. Also, no proper distinction is made among tactical, operational, and strategic objectives.

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<sup>23</sup> Christopher W. Bowman, *Operational Assessment—The Achilles Heel of Effects-Based Operations* (Newport, RI: Naval War College, 13 May 2002), p. 8.

<sup>24</sup> Joint Warfighting Center, USJFCOM, *Commander’s Handbook for an Effects-Based Approach to Joint Operations* (Norfolk, VA: Joint Concept Development and Experimentation Directorate, Standing Joint Force Headquarters, January 2006), p. III-5.

<sup>25</sup> Joint Doctrine Note 1/05: *The UK Military Effects-Based Approach*, September 2005, pp. 1-3 and 1-4.

<sup>26</sup> Joint Pub 3-0, *Joint Operations* (Washington, DC: U.S. Printing Office, 17 September 2006), p. GL-24.

<sup>27</sup> Joint Doctrine Note 1/05: *The UK Military Effects-Based Approach*, p. 1-5.

EBAO advocates describe a task not as what needs to be done, but as “one or more actions.” These “actions” then generate effects, and the latter lead to the accomplishment of the given objective. However, any task is an integral part of a respective military objective. Also, the “actions” are generated by tasks being carried out and then resulting in the accomplishment of the respect vie military objective. The proponents admit that the effects-based approach is less task-based and more focused on connecting effects and actions to objectives and the end state during course-of-action development.<sup>28</sup> Thus, the natural and logical link between the objective and its constituent main and component tasks is entirely broken. Proponents of EBAO are apparently unaware that a task given by a higher commander or authority becomes an objective for the subordinate commander. Another hard-to-understand element of EBAO is the insertion of effects between the objective and what proponents call “actions.” Tasks and objectives are far more specific than effects, and it does not make any sense to use “effects,” which are inherently much broader in scope and often intangible in their content, to be generated by “actions,” leading to the accomplishment of a more specific objective. The logical thing to do is to try to predict effects during the planning process but *after*—not prior to—the accomplishment of one’s military objective (see Figure 2).

### **Type of effects**

EBAO advocates have explained in detail the type of effects one’s actions might generate. They differentiate between direct and indirect effects. Direct effects are immediate, first-order effects, the results of military actions with no intervening effect or mechanism between an action and its outcome. Usually they are easily recognizable. Direct effects can be physical, functional, collateral, and physiological. Indirect effects are second- and third-order systemic effects that are results created through an intermediate effect or mechanism to produce the final outcome, which may be physical or psychological in nature. They tend to be delayed and may be difficult to recognize, and they are often a cumulative or cascading result of many combined direct effects.<sup>29</sup> Indirect effects can be functional, collateral, cascading, systemic, cumulative, and physiological.

Effects can be intended or desired or unintended or undesired. In general, it is difficult to generate desired effects on the enemy unless he operates like a system, as EBAO advocates claim. The problem is that the enemy is not a machine and does not interact like a machine. For example, the Israelis found it impossible to generate desired effects in Lebanon in July 2006 not only because Hezbollah had a high degree of redundancy but also because the Israelis lacked sufficient knowledge and understanding of Hezbollah’s organization to pinpoint its vulnerabilities precisely.<sup>30</sup> Another example of unintended effects was in the war over Kosovo in 1999. After 78 days of NATO’s bombing, some 45 percent of the Serbian TV broadcast stations were degraded and 30 percent of military and civilian radio relay networks were damaged; and petroleum refining facilities were completely eliminated. Approximately 70 percent of road and 50 percent of rail bridges across the Danube River were down. All this contributed to the huge repair bill that used up money originally assigned to deal with other humanitarian crises in Asia and Africa.<sup>31</sup> NATO’s bombing of the bridges across the Danube

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<sup>28</sup> The Joint Warfighting Center, USJFCOM, Pamphlet 7: *Operational Implications of Effects-based Operations (EBO)*, 17 November 2004, Glossary, p. 21.

<sup>29</sup> U.S. Joint Force Command (USJFCOM) Dictionary.

<sup>30</sup> Tira, *The Limitations of Standoff Firepower-Based Operations: on Standoff Warfare, Maneuver, and Decision*, p. 59.

<sup>31</sup> Cited in Conrad C. Crane, “Sky High. Illusions of Air Power,” *The National Interest*, Fall 2001, p. 120.



River also resulted in an undesired effect: a large loss of commerce for Hungary, Romania, and Bulgaria, countries allied with NATO.<sup>32</sup>

Another negative consequence of the targeting approach in NATO's air war over Kosovo was that General Wesley Clark, Supreme Allied Commander, Europe (SACEUR), ran out of militarily useful and politically suitable targets in late May 1999. He obtained approval to bomb or destroy transformer yards of the Serbian power grid on 24 May. This air raid disabled everything from the air defense command and control network to the country's banking system. However, an unintended effect of this action was the sudden cessation of the electrical supply to Serbian hospitals and water-pumping stations. All major Serbian cities experienced extended power disruptions until the cessation of hostilities on 10 June.<sup>33</sup>

### **Predicting effects**

In general, one may often correctly foresee the effects of a certain action against a physical objective. However, this is not always true, as the example of the Gulf War of 1990–1991 (Operation Desert Shield/Desert Storm) clearly illustrates. General Norman Schwarzkopf, commander in chief, USCENTCOM, directed airpower planners to destroy 50 percent of the Iraqi armor in the Kuwaiti Theatre of Operations (KTO). Such attrition was an important prerequisite for starting the ground offensive. In general, making an estimate of the attrition inflicted on enemy forces operating on open desert terrain is relatively simple. Yet different U.S. agencies assessed the attrition level very differently. For example, the CIA's estimate was the lowest, and it called into question any decision to start a ground war. With the benefit of hindsight, the 50 percent attrition of Iraqi armour was not actually necessary at all for starting the ground offensive.<sup>34</sup>

There are great difficulties in predicting and assessing what physical actions produce the desired behavioural effects over time. Effects are hard to measure and even harder to predict in terms of the factors of space, duration, and intensity. In addition, one's operational planners will often be unaware of the effect of a certain action at the time when quick and decisive action is needed to take advantage of the newly created situation. Even when the objective is used as the basis for operational planning, the effects of one's actions on the enemy are highly unpredictable and can in fact be detrimental to one's ultimate strategic purpose, as the German invasion of Poland in September 1939 and the Japanese surprise attack on Pearl Harbor on 7 December 1941 illustrate.

EBAO enthusiasts stress the importance of anticipating not only the first- but also second-, third-, and fourth-order effects. However, even ACTS theorists recognized that predicting just the first-order effects is difficult enough; predicting second-, third-, and fourth-order effects is virtually impossible.<sup>35</sup> Among other things, this demands a comprehensive understanding of the links between nodes and systems, to anticipate the likely behaviour of the enemy system and its impact on friendly systems and the remaining environment.<sup>36</sup> There are too many variables that simply cannot be mastered. Even a minor change in the conditions of a single entity can generate numerous unpredictable effects, both desired and undesired.

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<sup>32</sup> Reginald J. Williams and Rocky Kendall, *Operationalizing Effects-Based Operations (An EBO Methodology Based on Joint Doctrine)* (Langley AFB, VA: Air Combat Command, June 2004), p. 2.

<sup>33</sup> Cited in Conrad C. Crane, "Sky High. Illusions of Air Power," *The National Interest*, Fall 2001, p. 119.

<sup>34</sup> Bowman, Operational Assessment—The Achilles Heel of Effects-Based Operations, p. 12.

<sup>35</sup> Leonard, "The Elusive Silver Bullet: Effects in Army Operations," p. 8.

<sup>36</sup> Joint Warfighting Center, *Commander's Handbook for an Effects-Based Approach to Joint Operations* (Norfolk, VA: Joint Concept Development and Experimentation Directorate, Standing Joint Force Headquarters, USJFCOM, Date TBD, October 2005?), p. 21

For example, in the major combat phase of Operation Iraqi Freedom in 2003, the battle damage assessment (BDA) had significant shortcomings. The first-order effects could not always be determined. This was even more true in the cases of second- and third-order effects against enemy systems. The U.S. Air Combat Command observed that many of the air strikes against Iraqi government targets did not inflict the damage originally estimated. All too often the targets hit were those whose characteristics and importance to the Iraqi war effort had not been accurately evaluated. Many strikes were conducted against low-value targets or empty targets. All the coalition air attacks conducted against suspected weapons of mass destruction (WMD) targets were essentially a waste of effort because these weapons in fact did not exist. The experiences of the war in Iraq in 2003, in the words of EBAO proponents, show that the effects-based approach remained more an art than a science.<sup>37</sup> War is not an exact science subject to various mathematical algorithms, but a dynamic, ever-changing, and highly complex human interaction that involves accidents and errors on both sides.<sup>38</sup>

A good analogy for the inherent difficulties in anticipating the effects of one's actions is found in the game of chess. In chess, there are just 64 squares and 32 pieces, which can move within prescribed limits. Yet the free will of two players and the possible combinations of moves they can make are such that the number of ways they can play a game is incomputable in any meaningful sense.<sup>39</sup> Superficially, while there are only 40 possible first moves per pair of players, there are actually 400 possible board positions inherent in those moves. After the second complete move (i.e., two moves per player), the total number of distinct board positions is 71,852. After three moves each, the players have settled on one of approximately 9 million possible board positions. Four moves by each player raises the possibilities to more than 315 billion. The total number of unique chess games is not literally an infinite number. However, in practical terms, the difference is indistinguishable. It is in fact beyond not only human but also machine capability to play through all chess combinations—an estimated  $10^{120}$ .<sup>40</sup> In comparison, the total number of electrons in the universe, as estimated by physicists, is  $10^{79}$ .<sup>40</sup> This is in the game of chess, in which each player has the same number of fields and the same number of figures, and there are rigid rules and no fog of war.

In the Gulf War of 1990–1991 the U.S. planners put great emphasis on changing the behaviour of the Iraqi regime. However, estimating the psychological effects of coalition bombing proved extremely difficult. In fact, the full impact of these psychological effects remains shrouded in mystery. Such effects defied exact measurement. Operational assessment of such effects will always be ambiguous.<sup>41</sup>

### **Effects vs. Factor of time**

To recognize the effects of one's actions, a certain time must pass; and the length of the time factor cannot be realistically anticipated. Like surprise, the effects generated can last for a certain time; the longer the duration, the larger the impact they would have on the situation. None of these aspects of the factor of time related to effects are possible to anticipate and accurately measure. In terms of the factor of space, effects can be felt not only on the enemy, but also on the friendly side and neutrals. These effects can vary from highly

<sup>37</sup> David E. Johnson, *Learning Large Lessons. The Evolving Roles of Ground Power and Air Power in the Post-Cold War Era* (Santa Monica, CA: RAND Project Air Force, Prepared for the United States Air Force, 2007), p. 126.

<sup>38</sup> Tira, *The Limitations of Standoff Firepower-Based Operations: On Standoff Warfare, Maneuver, and Decision*, p. 49.

<sup>39</sup> E-mail by Paul van Riper, lieutenant general, USMC (Ret) to the author, 17 January 2007.

<sup>40</sup> David Schenk, *The Immortal Game. A History of Chess. Or How 32 Carved Pieces On A Board Illuminated Our Understanding Of War, Art, Science, And The Human Brain* (New York, NY: Doubleday, 2006), pp. 68-70.

<sup>41</sup> Cited in Bowman, *Operational Assessment—The Achilles Heel of Effects-Based Operations*, p. 15.

positive to highly negative. The duration of an effect can vary greatly; the more intangible the effect, the more likely it will last longer than a purely physical effect.

A major problem in planning to generate a desired cognitive effect is to know in advance how much time one needs to create such an effect. The longer the time required to create cognitive effects, the more potential political problems might be created, as the examples of the Kosovo conflict in 1999 (Operation Allied Force) and Lebanon in 2006 (Operation Change of Direction) illustrate. The amount of time required to create the desired cognitive effect is very hard to predict. Also, the initial psychological shock of one's attack is relatively short and is bound to dissipate, as the examples of the Iraqi Scud attacks on Iranian cities in February–March 1985 and in the spring of 1988 show. These massive attacks failed to achieve their stated purpose because the Iranians rallied in support of their government. Likewise, the Israeli air attacks against Hezbollah in July 2006 resulted in just the opposite cognitive effect of what was intended.<sup>42</sup>

Breaking the enemy's will to fight is difficult and usually requires an inordinately long time. In contrast, the enemy's problem is relatively simple; he has only to wait and endure one's attacks. This is especially true when the enemy knows that the attacker is politically or otherwise constrained in the use of its multidimensional capabilities. If the attacker's aim is to bring change in the enemy's will to fight, motivation, or behavior, a large number of variables must be taken into account. They are all hard to enumerate. It is also difficult to assess the degree of success in the future because of human psychological factors. For example, during the Kosovo conflict of 1999, Serbian strongman Slobodan Milosevic had nothing to fear from a possible NATO ground invasion but only had to endure air attacks against selected parts of Serbia's infrastructure. Likewise, Hezbollah knew in July 2006 that the Israelis were unwilling to combine their air attacks with manoeuvre of forces on the ground.<sup>43</sup>

Another factor that works against the attacker is the desire to finish the war quickly and with the fewest casualties. This is especially the case with the U.S. and other Western militaries. They have a much higher sensitivity to international public opinion than do their opponents, such as Al Qa'ida and its associated groups and organizations.<sup>44</sup>

### **Effects and Levels of War**

EBAO apparently bypasses the tactical and operational levels of war and is focused almost exclusively at the strategic level—that is, exactly the level at which such an approach is unlikely to be successful. The idea is to bridge the gap between the shooters, destroying targets and required military objectives indirectly through generating certain effects. The targets have to be destroyed in such a way as ultimately to paralyze the enemy system and its operational effectiveness and thereby create a sense of helplessness and distress that will unhinge the enemy, lead to his cognitive-strategic collapse, and force him to immediately cease hostilities.<sup>45</sup>

In effect, EBAO tries to create a shortcut by leaping directly to the strategic level of war and accomplishing the strategic objective without necessarily first engaging the enemy's fielded forces and employing one's forces at the tactical and operational levels.<sup>46</sup> This

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<sup>42</sup> Tira, *The Limitations of Standoff Firepower-Based Operations: on Standoff Warfare, Maneuver, and Decision*, p. 31.

<sup>43</sup> *Ibid.*, pp. 60, 31.

<sup>44</sup> *Ibid.*, p. 32.

<sup>45</sup> *Ibid.*, p. 22.

<sup>46</sup> Cited in *ibid.*, p. 25.

approach is the opposite of the well-proven approach in objective-based warfare that requires synchronized employment of one's sources of power across all levels of war, from tactical to strategic. The latter approach would lead to the enemy's strategic cognitive collapse through unilateral changes in the situation: one's own action, not the enemy's perceptions and intentions, would dictate the outcome.

The single biggest problem with EBAO is the enormous difficulty in anticipating—much less measuring—intangible elements of the military situation. The higher the level of war, the more intangibles the situation encompasses. Tangible elements of the situation are normally (although not always) possible to quantify. Intangibles are a different proposition; they are hard or even impossible to quantify with any degree of certainty or precision. Nowhere is that more true than at the operational and strategic levels of war, where intangibles encompassing not only military but also nonmilitary sources of power abound. At the strategic level, the national will to fight, the degree and robustness of public support for the war, the leadership's will to fight, and the cohesion of an alliance or coalition cannot be satisfactorily quantified.

Creating cognitive effects is progressively more difficult and uncertain the greater the scope of the military objective and corresponding situation. The higher the level of war, the more complex the so-called enemy system is. This complexity is greatest when one's actions are aimed to generate desired effects on nonmilitary aspects of the operational or strategic situation. It is there that the lack of sufficient knowledge and understanding of the enemy's culture and society can have very negative consequences. The enemy can also act emotionally and make errors or just fail to understand the full repercussions of his own actions. He can also act irrationally, or at least irrationally from one's point of view. For example, the North Vietnamese leadership acted "irrationally" by not agreeing to the U.S. terms during the 43 months of aerial bombardment in March 1965 to October 1968 (Operation Rolling Thunder). U.S. aircraft dropped close to 1.0 million metric tons of bombs and inflicted heavy damage on North Vietnam's physical infrastructure. The steady U.S. escalation of the air attack was intended to convey the message that the subsequent stages of attack would be more damaging, and that at any one stage it would be in North Vietnam's interest to stop fighting before the onset of the next, more severe stage. Yet the leadership in Hanoi continued to support the Vietcong despite the escalations and the destruction of its political and industrial infrastructure.<sup>47</sup>

### **Physical-Cognitive effects linkage**

Both direct and indirect effects can be cognitive (mental)<sup>48</sup> and noncognitive in their nature. In general, achieving cognitive effects is dependent on a large number of variables, such as the enemy's determination, the success of the enemy in inflicting reciprocal damage, and the enemy's assessment of the attacker's ability to sustain prolonged effects-based attacks in political and military terms. It also depends on the enemy leadership's and/or public opinion's perceptions of one's actions, the standard of living of the enemy society, and the general state of economic development.<sup>49</sup>

There are substantial difficulties in setting quantifiable milestones in terms of destruction or neutralization of a certain group of targets and then converting them into

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<sup>47</sup> Tira, *The Limitations of Standoff Firepower-Based Operations: On Standoff Warfare, Maneuver, and Decision*, pp. 29-30.

<sup>48</sup> The term *cognition* (from the Latin *cognoscere*- to know) pertains to one's mental ability to process information, applying knowledge and changing preferences.

<sup>49</sup> Tira, *The Limitations of Standoff Firepower-Based Operations: on Standoff Warfare, Maneuver, and Decision*, p. 30.

cognitive terms. In the absence of reliable measurements, it is not clear how the commander can make timely and sound decisions such as changing the mission priorities and shifting resources.<sup>50</sup>

Experience shows that even highly industrialized states can take a lot of punishment before any cognitive effect is achieved. For example, Great Britain endured nine months of Luftwaffe air attacks in 1940 that resulted in 43,000 killed and 139,000 injured, and one million houses damaged. Germany suffered even much higher losses from strategic bombing than Britain did. At the end of the war, a major part of its industry and residential areas was in ruins and some 2.0 million civilians had been killed. Germany collapsed only because the Allied armies physically occupied Germany in May 1945.<sup>51</sup>

Most difficult to predict is what physical actions must be carried out to generate desired behavioural effects over time.<sup>52</sup> This is especially complicated at the operational and strategic levels of war because of the dynamic mix of tangible and intangible elements in the situation. The effect of one's action on the enemy political leadership or operational commander cannot be predicted accurately. Nor can one precisely anticipate the effect of one's actions on the enemy's will to fight or the attitude of the populace, or the psychological reaction one's actions will produce. This is particularly the case when the enemy's political and military culture is different from one's own, as the events in Afghanistan and the U.S. difficulties in the post-hostilities phase of the war in Iraq amply illustrate. One's intelligence simply cannot predict key aspects of the enemy's strategic behaviour.<sup>53</sup>

Generally, it is difficult to understand the causal relationship between a military action and its cognitive effect. Perhaps one classic example of the disastrous results of trying to predict effects at the strategic level of war was the German decision to launch unrestricted U-boat warfare on 8 January 1917. This decision by the kaiser was based on solid technical grounds. However, the strategic assumptions about the effect of unrestricted U-boat warfare were completely wrong. The chief of the German admiralty, Admiral Henning von Holtzendorff, submitted a lengthy memorandum to General Paul von Hindenburg, chief of the German general staff, on 22 December 1916. This document tried to show statistically that success against British maritime trade was mathematically certain.<sup>54</sup> The authors predicted that out of a total of 20 million tons of British shipping, only 8.6 million tons were requisitioned for military purposes and 500,000 tons were involved in coastal traffic. About 1.0 million tons of shipping was unavailable because of repairs. In addition, some 2.0 million tons of shipping were available from neutrals. The Germans also predicted that because of the bad worldwide harvest in wheat and cereals, the United States and Canada would be unable to export any grain to England after February 1917. The German admiralty calculated that due to these shortages the imports of wheat to England would be reduced from 90 to 64 percent of the total required. The remainder had to come from distant places, specifically India, Australia, and Argentina. Because of the longer voyages, that would in turn require an additional 720,000 tons of shipping.<sup>55</sup> Thus, the number of ships employed in the wheat trade during 1917 might be calculated to be at least twice that in 1916. The Germans also calculated

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<sup>50</sup> Ibid., p. 34.

<sup>51</sup> Ibid., pp. 30-31.

<sup>52</sup> Neil, *Effects-Based Operations: Not Simple, But Necessary*, p. 20.

<sup>53</sup> Sinnreich, "An Operating Concept in Search of Modesty," p. 4.

<sup>54</sup> Cited in Charles R. M. F. Crutwell, *A History of the Great War 1914-1918* (Oxford: Clarendon Press, 1934), p. 377.

<sup>55</sup> Follow-on letter and memorandum of the chief of the admiral staff, Admiral von Holtzendorff, on 22 December 1916, "Ueber die Notwendigkeit eines baldigen Beginns des uneingeschraenkten U-Boot Krieges," sent to the chief of the general staff, General Paul von Hindenburg; National Assembly 1919-20, *Beilagen zu den Stenographische Berichte ueber die oeffentliche Verhandlungen des 15. Untersuchungsausschusses* Beilage 1: *Aktenstuecke zur Friedensaktion Wilsons 1916/17*, vol. 2, part V (Berlin: Verlag der Norddeutschen Buchdruckerei und Verlagsanstalt, 1920), pp. 226-27.

that their U-boats would almost entirely cut off the supplies of butter, margarine, and fats from Denmark and Holland. These two countries normally supplied at least 50 percent of the total consumption in these two items: about one-third of British imports of butter came from Denmark, and all the imports of margarine came from the Netherlands.<sup>56</sup> Holtzendorff firmly believed that if unrestricted U-boat war was declared, England could be forced to sue for peace within five months.<sup>57</sup>

The authors of the admiralty's memorandum estimated that traffic in the British ports in July–September 1916 was about 10.75 million tons. This total included 900,000 tons from enemy ships and 3.0 million tons of neutral shipping. Based on these numbers, they calculated that about 600,000 tons of shipping could be sunk per month (the actual figure was 658,000 tons) if unrestricted U-boat war was declared.<sup>58</sup> The German admiralty staff also calculated that two-fifths of the neutral shipping would be deterred from sailing to British ports. After five months of unrestricted U-boat warfare, British shipping would be reduced by 39 percent. The authors believed that such losses would be unbearable to England, which would be unable to continue the war against Germany.<sup>59</sup>

The German admiralty staff also believed that launching unrestricted U-boat warfare would considerably and negatively affect the British import of iron ore and timber from Scandinavia and iron ore from Spain. This, in turn, would have an immediate effect in increasing the need for coal because of the shortage of timber. Additionally, the reduction in the production of iron and steel would reduce the production of ammunition. Holtzendorff also pointed out that unrestricted U-boat warfare would reduce the British import of ammunition from neutral countries and thus create a better situation for the German army.<sup>60</sup> The German estimate was not so far off the mark regarding the effects the shipping losses would have on the supply of foodstuffs in England. In fact, some two months after unrestricted U-boat warfare started, supplies of wheat, flour, and rice were lower than had been estimated in the naval staff's analysis. By the end of April, England had practically run out of supplies from the potato crop collected in 1916.<sup>61</sup>

The Germans' biggest mistake was in their prediction of the effect the shipping losses and food and raw material shortages would have on England's will to fight. The effect was, in fact, just the opposite of what they had anticipated: England's willingness to continue the war and suffer the consequences was unbroken. The Germans made a common error in linking a technical estimate to the possible reaction of the enemy government (or "1st enabling effect," in the lingo of the effects-based approach).<sup>62</sup> The Germans never considered that Great Britain might take countermeasures.<sup>63</sup> Curiously, they did not combine their efforts against British shipping with any political, diplomatic, or other incentives to England, to enhance the likelihood that the British government would abandon the war. In short, the Germans relied solely on England's decision whether or not to continue the war effort.<sup>64</sup>

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<sup>56</sup> Ibid., pp. 377–78.

<sup>57</sup> Follow-on letter and memorandum of the chief of the admiral staff, Admiral von Holtzendorff, on 22 December 1916, "Ueber die Notwendigkeit eines baldigen Beginns des uneingeschraenkten U-Boot Krieges," sent to the chief of the general staff, General Paul von Hindenburg, *ibid.*, p. 227.

<sup>58</sup> Ibid., pp. 226–27; Henry Newbolt, *Naval Operations: History of the Great War Based on Official Documents by Direction of the Historical Section of the Committee of Imperial Defense* (London: Longmans, Green, 1913), IV, 359, 370, 385; V, 42, 58.

<sup>59</sup> Follow-on letter and memorandum of the chief of the admiral staff, Admiral von Holtzendorff, on 22 December 1916, "Ueber die Notwendigkeit eines baldigen Beginns des uneingeschraenkten U-Boot Krieges," sent to the chief of the general staff, General Paul von Hindenburg, p. 227.

<sup>60</sup> Ibid., p. 228.

<sup>61</sup> Fred C. Iklé, *Every War Must End* (New York, NY: Columbia University Press, revised edition, 1991), p. 43.

<sup>62</sup> Ibid., p. 47.

<sup>63</sup> Crutwell, *A History of the Great War 1914–1918*, p. 378.

<sup>64</sup> Iklé, *Every War Must End*, p. 46.

The Germans were fully aware that political and strategic side effects of the recommended campaign admitted the possibility that some countries, such as the Netherlands and Denmark, might enter the war on the side of the Entente powers.<sup>65</sup> Holtzendorff believed that unrestricted U-boat warfare would lead the United States to reconsider the question of whether to stay neutral or join the side of Germany's enemies. In his view, war with the United States was such a serious matter that it was best avoided. However, despite these dangers, Holtzendorff believed Germany should not shy away from using the only weapon that could ensure final victory. He believed that the Germans had to consider what the effect on Germany would be if the United States entered the war on the side of the Entente. He contended that U.S. shipping would have quite a small effect on the war. Holtzendorff expected that no more than a small percentage of U.S. shipping and ships of other neutral countries would enter British ports. In his view, most of that shipping would be so damaged that it would not sail in the initial and most decisive months of unrestricted U-boat warfare. The greatest effect would be on the American troops, who would not be transported in large numbers because of the lack of shipping. Nor would the United States be able to replace shortages in imports and shipping cargo space. Holtzendorff also believed that the United States would not continue the war alone if England sued for peace. He concluded that if unrestricted U-boat warfare were timely initiated, peace would come before the next summer harvest, specifically before 1 August 1917. In his view, Germany had no other option, even if the price was a break with America.<sup>66</sup>

The German evaluation of the U.S. entry into the war was based entirely on the prediction that England would sue for peace within five months. This was, in fact, the most critical mistake of the entire analysis. The Germans believed it highly unlikely that the United States would decide to enter the war against Germany if England sued for peace, because the Americans would lack the means to forcefully attack Germany.<sup>67</sup> In 1916, during debate with those who opposed the escalation of the war, German secretary of state Arthur Zimmermann went so far as to assert that the American contribution to the war would be "nil."<sup>68</sup> Even after the United States entered the war on 6 April and when unrestricted U-boat warfare had already lasted for three months, General Erich Ludendorff, quartermaster general, remained convinced that he had no need to worry. When the highly capable German ambassador in Washington, D.C., Count Johann-Heinrich von Bernstorff, warned that America could mobilize and send a large army to France, Ludendorff replied that Germany would have plenty of time to terminate the war with the United States before that, because within three months the submarine campaign would force England to make peace with Germany.<sup>69</sup>

Another major German error was not considering that the U.S. entry into the war might in fact be a strong disincentive for England to cease fighting. The Germans also erred in not considering the possibility of the American entry into the war in the first part of their study and simply inserting that prediction into the second part of the study. The Germans

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<sup>65</sup> Ibid., p. 44.

<sup>66</sup> Follow-on letter and memorandum of the chief of the admiral staff, Admiral von Holtzendorff, on 22 December 1916, "Ueber die Notwendigkeit eines baldigen Beginns des uneingeschraenkten U-Boot Krieges," sent to the chief of the general staff, General Paul von Hindenburg, p. 229.

<sup>67</sup> Ibid., p. 229.

<sup>68</sup> Iklé, *Every War Must End*, p. 45.

<sup>69</sup> National Assembly 1919–20, Untersuchungsausschuss ueber die Weltkriegsverantwortlichkeit, Stenographische Berichte ueber die oeffentliche Verhandlungen des 15. Untersuchungsausschusses .... nebst Beilagen, vol. 1 (Berlin: Verlag der Norddeutschen Buchdruckerei und Verlagsanstalt, 1920), p. 345; Johann-Heinrich von Bernstorff, *Deutschland und Amerika: Erinnerungen aus dem fuefnjaehrigen Krieg* (Berlin: Ullstein, 1920), pp. 412–13.

apparently believed—quite wrongly, as it turned out—that England’s decision to sue for peace was independent of America’s joining the war on its side.<sup>70</sup>

The Germans considered England’s decision to sue for peace as a certainty rather than just a possibility. Nor did they consider that their prediction might be wrong. In fact, the prediction that England would sue for peace was considered an unchallengeable assumption. The Germans also failed to recognize the desirability of keeping America at least neutral, as insurance in the—to them—unlikely event that England fought for more than five months. In short, the Germans were quite cavalier about provoking America to enter the war.<sup>71</sup> In fact, the U.S. decision to enter the war on the side of the Entente was one of the most decisive factors in sealing Germany’s fate. Bernstorff consistently warned Berlin that America would declare war and that its resources were inexhaustible. He urged his government to accept the peace mediations of President Woodrow Wilson.<sup>72</sup>

In World War II, the British decision to start bombing Germany’s cities, with the focus on destroying residential areas, was not as successful as widely predicted. The main objective of seriously lowering German morale and thereby shortening the war was not achieved. This decision was based on a technical analysis of the effect the bombing of residential areas would have on the morale of the German labor force. However, the problem with the analysis was that everything centered on a purely technical calculation of the number of aircraft available for bombing, the number that would reach their assigned targets, and the physical effects of the bombs dropped. The most crucial mistake in the analysis was an unproven assumption that most damaging for enemy morale would be the destruction of the houses in which workers lived. Supposedly, a worker would be more affected by losing a house than by having his friends or even relatives killed. The authors of the memorandum never considered the possibility that a worker who lost a house might move to some other undamaged house, live with another family, and continue to work at his workplace. The memorandum also boldly stated, “There seems little doubt that destruction of the worker’s residential areas would break the spirit of the people.” This linkage between the physical action and desired effect was never challenged by the internal critics of the entire idea of bombing German cities.<sup>73</sup> For example, Albert Speer (1905–1981), the Nazi minister for armament and ammunition said that the Allies underestimated the power of resistance of the German people and no account was taken of the fatalistic frame of mind a civilian population acquires after numerous air raids. Despite all the air bombing, the output of the German workers did not diminish up to the end of the war. The will to rebuild factories was unimpaired.<sup>74</sup>

One can contend that strategic bombing had an effect in speeding up Germany’s surrender in 1945. It is also clear that because of the bombing the Germans were forced to spend a substantial part of their scarce resources on territorial air defense. Allied strategic bombing of Germany and Germany’s occupied territories produced some substantial effects on Germany’s war effort. Speer told the Allied interrogators after the war that in 1943–1944 between 1.0 and 1.5 million Germans were involved in bomb damage repair organization. If there had been no Allied bombing offensive, the Germans would have been able to shift

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<sup>70</sup> Iklé, *Every War Must End*, pp. 46–47.

<sup>71</sup> *Ibid.*, pp. 45–46; Charles Webster and Noble Frankland, *The Strategic Air Offensive Against Germany, 1939–1945*, vol. 4, *Annexes and Appendices, History of the Second World War*, United Kingdom Military Series, edited by James Butler (London: Her Majesty’s Stationery Office, 1961), p. 383.

<sup>72</sup> Crutwell, *A History of the Great War 1914–1918*, p. 379.

<sup>73</sup> *Ibid.*, pp. 29–30.

<sup>74</sup> Webster and Frankland, *The Strategic Air Offensive Against Germany, 1939–1945*, vol. 4, *Annexes and Appendices*, pp. 383, 385



several hundred thousand workers from the armament industry to the front line at the end of 1943. Also, without Allied air raids the Germans would have brought a larger number of foreign laborers to work in the armament industry. Speer estimated that some 30 percent of the total gun output in 1944 consisted of AA guns. Approximately 20 percent of that year's output of heavy shells consisted of AA shells. Between 50 and 55 percent of the capacity of the German electro technical industry was engaged in the production of radar and signal equipment for defense against bomber attacks. About 33 percent of the optical industry was engaged in the production of devices for AA guns and for other AA equipment. Because of the Allied bombing and the consequent need to produce AA guns, the Wehrmacht did not get a sufficient number of antitank guns.<sup>75</sup>

Yet it is also fair to say that the effect of the strategic bombing would have been much greater if the focus had been on destroying or neutralizing ball-bearing plants, oil-refining facilities, shipyards, and railroads, and providing effective support to the Allied troops on the ground. Major parts of the Allied resources and efforts spent on strategic bombing could have been used for defense against the German U-boats. For example, the German ball-bearing industry in World War II represented a small, concentrated, and high-payoff target. Between 70 and 80 percent of the German ball-bearing industry was concentrated in the Schweinfurt area.<sup>76</sup> Speer confirmed that a serious shortage of ball bearings would have critically weakened German industry within two months and brought it to a complete standstill after four months.<sup>77</sup> However, the Allied raids proved very costly and largely ineffective.<sup>78</sup>

In the U.S. bombing of North Vietnam in 1965–1968 (Operation Rolling Thunder), there was a disconnect between predicted and actual effects, indicators, measures, analysis, and feedback. The desired effect was to compel the North, under the pressure of aerial bombardment and by hindering the flow of men and material through air attacks against the transportation system, to cease its support to the Vietcong insurgency. U.S. aircraft dropped 643,000 tons of bombs, destroying 65 percent of North Vietnam's oil storage capacity, 59 percent of its power plants, 55 percent of its major bridges, about 9,800 vehicles, and 2,000 railroad cars. Almost 90 percent of bombs by weight fell on transportation-related targets. Although the bombing hindered the movement of men and supplies, it did not significantly affect infiltration from the North. The reason was that North Vietnam had a resupply capacity that was more than adequate to prosecute the guerrilla war in South Vietnam. By August 1967, North Vietnam had only about 55,000 troops in South Vietnam; the remaining 245,000 men were indigenous Vietcong. An unintended effect of the U.S. bombing was that instead of limiting North Vietnam's imports it actually increased them because of greater assistance from the People's Republic of China (PRC) and the Soviet block. The attack on oil storage areas and electric power had a marginal effect on North Vietnam's war effort. The northern trains ran on coal or wood rather than oil. North Vietnam required only 32,000 tons of oil per year to operate its economy. It also had more than 60,000 tons of oil in dispersed sites by the end of 1966. To fuel their trucks on the Ho Chi Minh Trail, the North Vietnamese needed less than 1,600 tons of oil per year. Most North Vietnamese civilians did not suffer from the bombing.<sup>79</sup>

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<sup>75</sup> *Ibid.*, pp. 394, 383.

<sup>76</sup> *Ibid.*, p. 374.

<sup>77</sup> Haywood S. Hansell, JR., *The Strategic Air War Against Germany and Japan* (Washington, DC: Office of Air Force History, 1986), p. 86; Charles Webster and Noble Frankland, *The Strategic Air Offensive Against Germany, 1939-1945*, Vol. IV: *Annexes and Appendices, History of the Second World War*, United Kingdom Military Series, edited by James Butler (London: Her Majesty's Stationary Office, 1961), pp. 389-90.

<sup>78</sup> Christopher W. Bowman, *Operational Assessment—The Achilles Heel of Effects-Based Operations* (Newport, RI: Naval War College, 13 May 2002), p. 7.

<sup>79</sup> Mark Clodfelter, *The Limits of Air Power. The American Bombing of North Vietnam* (Lincoln: University of Nebraska Press, 2006), pp. 134-36.

Despite all efforts during almost four years (March 1965-October 1968) of bombing, an estimated 70,000 North Vietnamese and Vietcong launched the Tet Offensive in January 1968. Operation Rolling Thunder had failed to effectively reduce the flow of men and supplies needed to support enemy operations in the south, or to compel the North Vietnamese leadership to cease its support of insurgents in the south. The operation caused damage to North Vietnam's small industrial base and rudimentary transportation system, but it did not achieve its stated objective. Both the civilian and military leadership miscalculated the effects of Rolling Thunder. They believed that the threat of industrial devastation would compel Hanoi to end the war.<sup>80</sup>

In Lebanon in 2006, the Israeli general staff decided to use primarily air strikes with precision weapons to generate a complex chain of causal connection. The destruction of targets would create functional effects on the enemy systems that would in turn spark cognitive effects on the Hezbollah leadership. This, in turn, would generate the expected behavioral changes. Specifically, Hezbollah would accept the Israeli condition and remove the threat of the surface-to-surface missiles (SSMs). This was a complicated task because the desired effect was not a primary derivative of the destruction of the target by the shooter, but rather a second, third, or even fourth derivative. In short, it was difficult for the Israelis to determine the way to use force that would generate the chain of required causal connections to attain the required military objective. In addition, in such a situation the outcome—whether or not the objectives are achieved—is in fact left to the enemy. If the enemy decides to succumb to the effects and if he decides that his cost/benefit calculations do not justify continuing hostilities, the attacker has achieved the desired military objective. However, if the enemy decides not to surrender despite damages to his system and remains defiant and resolute, then the objective is not accomplished. Ultimately, the Israelis failed to achieve decisive results at all levels of war. They did not achieve decapitation, paralysis, blindness, or any other effect that substantially harmed the will of Hezbollah. Israel did not succeed in suppressing Hezbollah's operational effectiveness as a system. It did not generate a sense of hopelessness and distress. Moreover, the Israelis completely failed to bring about the desired strategic cognitive collapse of Hezbollah and thereby end the war on Israel's terms.<sup>81</sup>

### **Air vs. Ground effects**

One's predominant or exclusive reliance on the effects generated by the use of cruise missiles and/or air-launched precision weapons is insufficient to generate cognitive collapse at the operational and especially strategic levels. These actions should be combined with the use of one's forces on the ground. For example, in Lebanon in 2006, the Israelis viewed Hezbollah as a so-called system of systems. They tried unsuccessfully to bring about its cognitive collapse by avoiding a bloody battle on the ground in southern Lebanon. In other words, they hoped to achieve a strategic cognitive collapse by bypassing the tactical level and acting directly at the strategic level of war. In contrast, the Israelis were highly successful in the final phase of the Yom Kippur/Ramadan War in October 1973, because they properly integrated their actions across all the levels of war. The Egyptians were close to cognitive-military, political collapse. They urgently asked for a cease-fire only after the Israeli Defense Forces (IDF) killed thousands of Egyptian soldiers in battle, three IDF divisions crossed the west side of the Suez Canal, and the Egyptian Third Army was cut off. There was the

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<sup>80</sup> Donna Lucchese, *The Relationship of Center of Gravity Analysis, Targeting for Effect, and Measuring Success* (Carlisle Barracks, PA: Army War College, 1998), pp. 7–8.

<sup>81</sup> Tira, *The Limitations of Standoff Firepower-Based Operations: on Standoff Warfare, Maneuver, and Decision*, pp. 22-23, 44.

imminent possibility that the Egyptian Second Army would also be encircled. Moreover, the Israeli forces were only about 45 miles away from Cairo, and there were no significant Egyptian forces in between.<sup>82</sup>

In many cases, ground maneuver generates far greater effect than precision weapons.<sup>83</sup> This fact is all too often overlooked by even skeptics of EBAO. For example, encircling and destroying a major part of the enemy ground forces, capturing the enemy capital, or destroying a major part of the enemy air force on the ground or fleet at a naval base generates a much more powerful effect than just hitting and destroying the targets.

### **Situation assessment**

Based on the scale of the objective, the tactical, operational, and strategic military situations are differentiated. A military situation consists of three overlapping and interrelated situations: the enemy's, one's own, and neutrals' situations. The larger the objective, the more complex the situation. It is inherently composed of a large number of tangible and intangible elements. Nonmilitary aspects of the situation are always present, especially at the operational and strategic levels of war (see Figure 2). The situation is more complex in the post-hostilities phase or in an insurgency/counterinsurgency, because nonmilitary aspects and many intangibles are present even at the lowest tactical level. Properly understood and applied, the traditional estimate or assessment of the situation provides an all-encompassing and highly flexible framework for making a sound decision for a commander at any level of command.

In contrast to the traditional approach, effects-based warfare advocates insist that the best way of evaluating the military situation is to have what they call a "systems" approach.<sup>84</sup> A system is described as a "functionally, physically and/or behaviorally related group or regularly interacting or interdependent elements forming a unified whole."<sup>85</sup> A "system of systems" is defined as "a grouping of organized assemblies of resources, methods, and procedures regulated by interaction or interdependence to accomplish a set of specific functions." For example, a "system of systems" could include the economic entities in a nation, such as the banking system, the production system, etc. EBAO advocates do not make clear distinctions among situations based on the objectives to be accomplished. Instead, they use the term "operational environment" (OE)—"the air, land, sea, space, and associated adversary, friendly, and neutral systems, which are relevant for specific joint operation."<sup>86</sup> The operational environment is composed of political, military, economic, social,

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<sup>82</sup> Ibid., p. 26.

<sup>83</sup> Ibid.

<sup>84</sup> The proponents of this approach define a "system" as a network of nodes and links within a battlespace that represents any combination of people, material, facilities, and information and their relationships to one another. A system is also understood as any organized assembly of resources and procedures united and regulated by interaction or interdependence to accomplish a set of specific functions. A system of systems is defined as a grouping of assemblies of resources, methods, and procedures regulated by interaction or interdependence to accomplish a set of specific functions. Vulnerability is described as the characteristics of a system that cause it to suffer a definite degradation or inability to perform the designated mission because of being subjected to a certain level of effects in a man-made hostile environment. A model is described as the intellectual construct composed of sets of categories, assumptions, and postulates that helps one to sort, analyze, and examine the relationship between and among elements of data and predict the course of events. However, if a model does not correspond in some way to what it claims to represent, it will have limited utility, because it then fails to mirror reality faithfully. Lewis Ware, "Some Observations of the Enemy as a System," *Airpower Journal* (Winter 1995), <http://www.airpower.maxwell.af.mil/airchronicles/apj/ware.html>, p. 2; a system is a functionally, physically, or behaviorally related group of elements that interact together as a whole; Joint Warfighting Center, Joint Doctrine Series, Pamphlet 7, *Operational Implications of Effects-based Operations (EBO)* (Norfolk, VA: United States Joint Forces Command, 17 November 2004), p. 2.

<sup>85</sup> Joint Warfighting Center, *Commander's Handbook for an Effects-Based Approach to Joint Operations* (Norfolk, VA: Joint Concept Development and Experimentation Directorate, Standing Joint Force Headquarters, USJFCOM, Date TBD, October 2005?), p. 14.

<sup>86</sup> Joint Publication 5-0, *Joint Operation Planning* (Revision, Third Draft, 10 August 2005), p. IV-8.

infrastructure, and information (PMESII) systems.<sup>87</sup> Each of these systems, in turn, is broken down into two primary elements: nodes and links. Nodes are defined as 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. They can be the command or supervisory arrangements that connect a superior to a subordinate, or the relationship of equipment to a fuel source. A link can also be the ideology that connects a propagandist to a group of terrorists. A link establishes the interconnectivity between nodes that allows those nodes to function as a system to achieve specific behavior.<sup>88</sup>

Supposedly, the graphical depiction of node-link relationships assists planners in discovering decisive points against which the joint force can act. Actually, the nodes are these decisive points; this fact apparently escapes the advocates of the effects-based approach. By depicting a system’s capabilities as a combination of interconnected nodes and links, analysis can enhance the joint force commander’s (JFC’s) understanding of which capabilities are most critical to system performance or behavior and, in turn, which of these capabilities are most vulnerable to friendly influence.<sup>89</sup> However, the nodes might be wrongly determined; such a mistake might affect the use of one’s power against other nodes, or it might not generate a ripple effect. In addition, the strength of the links could be improperly assessed initially, or during combat links and nodes might undergo changes that the planners do not timely notice.

EBAO advocates believe that every system can be analyzed by using node-link analysis.<sup>90</sup> This so-called “system of systems analysis” (SoSA) views the adversary as an interrelated system. The SoSA aim is to “identify, analyze, and relate the goals and objectives, organizations, dependencies and inter-dependencies, external influences, strengths, vulnerabilities and other aspects of the various systems.” The significance of each PMESII system and its various elements must be determined as part of the “overall adversary system in order to assess the systemic vulnerability of the various elements and how we can exploit them to achieve desired effects.”<sup>91</sup> JFC directs the use of force against nodes to attain behavioural, functional, and/or physical changes in a system. These changes can occur in the nodes, the links, or both. Lethal or non-lethal power and other instruments of national power are normally employed to affect links in order to attain operational and strategic effects.<sup>92</sup> The ultimate aim is to create effects within the enemy’s system such as blindness, decapitation, and the sense of being pursued, thereby bringing about a state of strategic collapse and ultimately achieving the war’s strategic objective.<sup>93</sup>

EBAO proponents assume that nodes and links can be determined with certainty and that the effect of one’s actions on enemy nodes is more or less linear. They believe that these actions can somehow be precisely calibrated to produce desired effects. This approach to warfare is not much different from that of the failed “geometrical” or “mathematical” school that dominated military thinking in Europe in the late eighteenth century. Clausewitz was vehemently opposed to that school. Contrary to the views of many EBAO advocates, Clausewitz did not embrace the systemic view of warfare. He was against any rigid or

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<sup>87</sup> Pamphlet 7, *Operational Implications of Effects-based Operations (EBO)*, p. 2.

<sup>88</sup> Joint Warfighting Center, *Commander’s Handbook for an Effects-Based Approach to Joint Operations*, p. 14.

<sup>89</sup> Pamphlet 7, *Operational Implications of Effects-based Operations (EBO)*, pp. 19–20.

<sup>90</sup> *Commander’s Handbook for an Effects-Based Approach to Joint Operations* (January 2006), pp. II-3 and II-3.

<sup>91</sup> The Joint Warfighting Center, USJFCOM, Pamphlet 7: *Doctrinal Implications of Operational Net Assessment (ONA)*, 24 February 2004, p. 5.

<sup>92</sup> Joint Warfighting Center, *Commander’s Handbook for an Effects-Based Approach to Joint Operations*.

<sup>93</sup> Tira, *The Limitations of Standoff Firepower-Based Operations: On Standoff Warfare, Maneuver, and Decision*, pp. 11-12.

dogmatic way of thinking. This is one of the main reasons why his teachings on the nature of war are still viable today.

The system-of-systems view of the situation resembles an architectural design rather than a description of the real world, which is highly complex and dynamic. The military situation cannot be viewed, much less properly analyzed, as some kind of a system. Humans are not machines. Clausewitz reminds us that war is not the action of a living force upon a lifeless mass but the collision of two living forces that interact.<sup>94</sup> The enemy has his own will and will not behave the way one wants him to behave. He is likely to respond to one's actions. He is not devoid of emotions. The enemy can react unpredictably and irrationally. Thus, attempts to identify so-called nodes and to arbitrarily assign values or importance to links between various nodes are of little, if any, practical utility. In fact, EBAO enthusiasts are trying to take the "art" out of warfare and substitute "science." This is the best proof that the entire EBAO approach to warfare rests on faulty foundations.

Experience provides numerous examples of how difficult it is to accurately analyze other societies (and often even one's own society) and other cultures and political traditions. Among other things, the enemy might have a low sensitivity to damage inflicted on his own country and population. Enemy decision makers may act according to internal political considerations that are hard to identify, predict, and analyze ahead of time.<sup>95</sup> The U.S. bombing of North Vietnam in 1965–1968 (Operation Rolling Thunder), NATO's bombing in the Kosovo conflict of 1999, and most recently, the Israeli bombing of Lebanon in July 2006 are examples of how actions aimed to generate certain cognitive effects fell far short of one's expectations. For example, during the war in Lebanon in July 2006, Hezbollah's flat and decentralized structure consisted of a network of autonomous cells with high redundancy. Hezbollah did not have clearly identifiable vulnerability nodes. It has a small footprint because it relies on a system of bunkers concealed in the wadis and because it blends into the generally sympathetic population. Hence, it did not present what is called an operational center of gravity. The entire network relied on the two- to three-man cells that operated from ordinary apartments. Hezbollah's internal communications were simple and highly redundant. Its fighters and weapons were deployed in advance. Hezbollah did not normally move its forces or supplies around. This type of organization has very low sensitivity to functional effects. The Israelis fired some 160,000 shells, flew 15,000 sorties, including 7,000 strike sorties, and fired 1,800 rockets carrying hundreds of thousands of bomblets. The Israeli ships had 8,000 sailing hours and conducted 2,500 offshore bombardments. The results were clearly small for all the efforts made: several dozen high-value targets were destroyed, and an estimated 200 to 400 Hezbollah fighters were killed. This number does not include those killed in the battle with Israeli forces on the ground.<sup>96</sup>

### **SoSA and Center of Gravity**

EBAO proponents' view of what constitutes the centre of gravity (COG) is false; their view is essentially identical to the one described in the Five-Ring model. The new Joint Pub 5-0, *Joint Operation Planning* (2006), defines centre of gravity as typically consisting of "a set of nodes and their respective links (relationships)."<sup>97</sup> A COG is reduced to what they call a

<sup>94</sup> Cheek, *Effects-Based Operations: The End of Dominant Maneuver in Transformation Concepts for National Security in the 21st Century*, p. 88.

<sup>95</sup> Tira, *The Limitations of Standoff Firepower-Based Operations: On Standoff Warfare, Maneuver, and Decision*, p. 30.

<sup>96</sup> *Ibid.*, p. 44

<sup>97</sup> Joint Publication 5-0: *Joint Operation Planning* (Washington, DC: U.S. Government Printing Office, 26 December 2006), p. IV-10; Joint Publication 3-0: *Joint Operations* (Washington, DC: U.S. Government Printing Office, 17 September 2006), pp. IV-4 and IV-5.

key node—in fact, a decisive point. However, a decisive point is not a COG, though it can provide a pathway toward the enemy COG. The systems approach envisages identifying numerous so-called COGs.

Yet, when there are many COGs, the entire concept of employing one's sources of power most effectively by focusing major efforts against the enemy's most critical strength (while at the same time protecting one's own) loses its meaning. This is why the objective must be firmly in the centre of the entire process of identifying the centre of gravity. This disconnect is due to the EBAO proponents' almost exclusive focus on effects instead of the objective to be accomplished. Another reason is that the systems approach is evaluating inherently hard-to-simplify elements of the situation at the operational and strategic levels. The systems approach is probably the single greatest flaw in the entire effects-based approach to warfare.

### **EBAO and methods of combat force employment**

The military objectives determine the method of one's combat force employment. Hence, tactical actions, major operations, and campaigns are differentiated. Strikes, attacks, battles, and engagements are principal methods of employing one's combat forces to accomplish tactical objectives. In contrast, the EBAO proponents focus almost exclusively on strikes and attacks. They use the term "operations" but not the term "major operation," in the way that operational art theory uses it. U.S. Army and joint doctrine defines a major operation as a series of tactical actions (battles, engagements, strikes) conducted by various combat forces of a single or several services coordinated in time and place to accomplish operational and sometimes strategic objectives in an operational area; these actions are conducted simultaneously or sequentially in accordance with a common plan and are controlled by a single commander.<sup>98</sup>

Nevertheless, the theoretical underpinnings of major operations are generally poorly understood in the U.S. military. This is somewhat surprising because major operations are the principal method of accomplishing an operational objective. A major operation, in turn, consists of a series of related tactical actions. A campaign, in contrast, consists of a series of major operations sequenced and synchronized in terms of space and time and is aimed at accomplishing a strategic objective. In a case where political and diplomatic aspects of a strategic objective predominate, as in the Kosovo conflict of 1999, it is possible to achieve the strategic objective through a major joint or combined operation.

### **Traditional vs. EBAO decision making and planning**

Among perhaps the worst consequences of adopting EBAO are the changes it brought to the traditional military decision-making and planning process (MDMP). The traditional approach to decision making and planning is based on a certain logic and common sense. Properly understood and applied, it was invariably successful in numerous wars fought in the modern era. Yet it is true that in recent years, MDMP was made much more complex, especially in the U.S. military. Among other things, so-called joint intelligence preparation of the battlefield (JIPB) was elevated to have the same, if not greater, importance than the mission analysis. The commander's estimate of the situation was also increasingly made more

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<sup>98</sup> Headquarters, Department of the Army, FM 3-0: *Operations* (June 2001), p. 2-3; Joint Publication (JP) 3-0: *Doctrine for Joint Operations* (10 September 2001), pp. GL-12 and GL-13;

time-consuming and cumbersome, because too much, often quite trivial, information was made part of the estimate. Moreover, the emphasis has often been on the format, not on the estimate process itself. However, all these and other problems can be considerably reduced and eliminated by going back to fundamentals. The adoption of EBAO as part of the commander's estimate and planning has created some serious problems that endanger the utility of the entire MDMP.

In the effects-based approach, a major part of the mission analysis seems to centre on a determination of effects.<sup>99</sup> This step is made unnecessarily complex and difficult. Moreover, many elements of the mission analysis have nothing to do with it. For instance, mission analysis, as the very term implies, should not include a determination of the friendly and enemy's (or what they call "adversary's") centres of gravity. EBAO advocates highlight the need to use language that clearly distinguishes effects from objectives and tasks, yet they define objectives for "prescribing goals" while tasks "direct friendly action." However, both definitions differ from those traditionally accepted and commonly known. They also mistake "purpose" and "objective" as two different things; they are, in fact, identical.<sup>100</sup>

EBAO proponents are also drastically changing the methods traditionally used to reach a sound decision. The well-proven process of the commander's estimate of the situation is rarely discussed by many EBAO proponents. By inserting and then highlighting effects, the content of several steps of the estimate has been significantly changed. To make things more complicated, EBAO proponents have added SoSA to the JIPB process as part of the commander's estimate of the situation. EBAO proponents claim that JIPB and SoSA have identical purposes: to give JFCs sufficient situational awareness of the operational environment to successfully accomplish their mission. The differences between the two are primarily a matter of scope, emphasis, and form: supposedly JIPB focuses more on the enemy's military capabilities and geography, while SoSA expands the assessment to nongeographic dimensions and can extend beyond the battlespace to political, economic, informational, and other domains. SoSA devotes more analysis to subjects of interest to the entire interagency community, especially with regard to human behaviour.<sup>101</sup> However, JIPB, when properly conducted, encompasses a detailed analysis of both military and nonmilitary elements of the situation. Adding SoSA while retaining the JIPB process is going to make the decision-making process not simpler and more effective, but just the opposite.

Another major problem with adopting the effects-based approach is that the traditional content of the mission statement is fundamentally changed. Normally, any well-written mission statement consists of two parts: the task(s), followed by the purpose (the objective). By redefining tasks as actions and inserting effects, EBAO advocates make the mission statement far more difficult to articulate concisely and clearly. The mission will be composed of a mix of specific purposes and much less specific elements: effects. In short, advocates of the effects-based approach would fundamentally change the principal product of the mission analysis—the restated mission, as well as the commander's intent, which is based on the restated mission. The fact is that articulating a sound mission statement and commander's intent is often not done well. The effects-based approach will not make that task any easier; just the opposite. This problem is compounded by apparent confusion on the part of many effects-based proponents regarding what task, effect, and objective are; they are often understood and expressed in almost identical ways.

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<sup>99</sup> Pamphlet 7, *Operational Implications of Effects-based Operations (EBO)*, p. 27; JP 5-0, *Joint Operation Planning*, p. III-8.

<sup>100</sup> *Commander's Handbook for an Effects-Based Approach to Joint Operations* (January 2006), pp. III-3 and III-4.

<sup>101</sup> Pamphlet 7, *Operational Implications of Effects-based Operations (EBO)*, p. 15.

In the effects-based approach, development of a course of action encompasses not only the development of friendly courses of action, but also the analysis (war gaming of friendly and enemy courses of action), comparison, and selection of the most optimal course of action.<sup>102</sup> Clearly, too many steps of the estimate of the situation are crammed into a single step, making the entire process significantly more complex.

Advocates of the effects-based approach also adopted a different approach to campaign planning. It abandons the “regressive” (or inverse) method used for planning campaigns and major operations based on the objectives to be accomplished. The focus is almost exclusively on effects, not on the ultimate (strategic or operational) and intermediate (operational or major tactical) objectives and other elements of operational design, such as balancing operational factors and identifying enemy and friendly critical factors and centres of gravity. Normally, for a campaign or major operation intended to end hostilities, the highest political leadership issuing strategic guidance should also include the desired (strategic) end state. The latter is defined as a set of political, diplomatic, military, economic, informational, ethnic, religious, and other aspects of the strategic situation that the nation’s or alliance/coalition’s leadership wants to see after the end of hostilities. Expressed in terms of the effects-based approach, the desired (strategic) end state is in fact the *strategic effect* that should be achieved in order to gain political victory in a conflict or war. The desired (strategic) end state, in turn, serves as a starting point to determine strategic objectives (which are also part of strategic guidance). The combatant commander normally determines theatre-strategic objectives based on the military strategic objectives determined by the national leadership. However, experience shows that the politico-military leadership, in issuing its strategic guidance, rarely if ever provides the theatre commander with what can be understood as the desired (strategic) end state.

In contrast, the proponents of the effects-based approach intend to use a different logic in the planning process. They say that in designing a campaign, a combatant commander or component commander provides objectives that describe the desired effects. Once these effects are defined, the planners devise a framework consisting of the elements that constitute each effect. After the quantifiable measures have been applied to the effects, tasks are assigned to subordinates.<sup>103</sup> Campaign phasing will be based on the effects achieved, not dependent on the accomplishment of intermediate operational objectives. Supposedly, effects identified for the enemy, friendlies, and neutrals would be used as criteria for entering the next phase of a campaign.<sup>104</sup> Normally, the accomplishment of the intermediate objectives in a campaign determines the campaign’s phasing. Why effects on neutrals should be a major factor in phasing one’s campaign is difficult to explain or understand.

EBAO advocates also use so-called lines of operations as a method of grouping common tasks to achieve overall effects and objectives.<sup>105</sup> This term is identical to a commonly known and well-understood Jominian term, which only further confuses the issue. The negative result of using lines of operations as a way of grouping tasks in a campaign is that the entire operational idea (concepts of operations, in generic terms) is fragmented and therefore lacks the necessary coherence to be effective. Proponents of the effects-based

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<sup>102</sup> Commander’s Handbook for an Effects-Based Approach to Joint Operations (January 2006), p. III-13.

<sup>103</sup> David B. Lee and Douglas “Kupe” Kupersmith, *Effects Based Operations: Objectives to Metrics Methodology—An Example* (Vienna, VA: Military Operations Research Society, Analyzing Effects-Based Operations Workshop, January 2002), pp. 10, 8.

<sup>104</sup> *Commander’s Handbook for an Effects-Based Approach to Joint Operations* (January 2006), p. 39.

<sup>105</sup> *Ibid.*, p. 39.



approach pay little, if any, attention to some key elements of the operational idea, such as operational manoeuvre, deception, branches and sequels, protection of the friendly centre of gravity, anticipation of the point of culmination, sequencing, and reserves.

EBAO proponents do not consider that a sound plan for a campaign or major operation must provide for synchronization of operational functions such as operational intelligence, fires, logistics, and protection. They erroneously argue that current procedures for operational planning are inadequate to ensure close integration of military actions with those of other national (and multinational) agencies and organizations. Yet one can argue that poor interagency coordination is more a problem of the personalities involved than of a lack of adequate procedures.

### **Prerequisites**

The key prerequisites for the success of EBAO are almost perfect information and intelligence, reliable communications, and so-called operational net assessment (ONA); otherwise, the entire concept cannot be successful as advertised. The operational commander's ability to predict effects is determined by the quality of the net assessment and the ability to use the net assessment to make a sound decision. The net assessment, in turn, depends on collecting and analyzing information. Information is a critical enabler for EBAO. Proponents of EBAO assert, providing little if any proof, that excellent information coupled with superior analysis will help predict effects. At the same time, they implausibly claim that even limited information and incomplete analysis do not invalidate effects-based theory.<sup>106</sup> Intelligence problems are essentially a problem of human perception, subjectivity, and wishful thinking. They are unlikely to disappear, regardless of the degree of sophistication of one's technological means of information collection and processing.<sup>107</sup>

Intrinsic to EBAO is the need for perfect information. However, in reality, sensors do not operate properly or break down, weather adversely affects one's movements and use of weapons/sensors, and missiles/bombs miss targets. The enemy can quickly adjust and adapt to one's advanced technologies. He can also disperse his forces into an urban terrain and blend with the civilian population, or he can operate in inaccessible jungle or mountainous terrain. In addition, there are always unpredicted effects because of friction, chaos, the nonlinearity of war, and the inherent unpredictability of human behavior in combat. Very often, useful information is lost in system noise. Information can be incorrectly interpreted or analyzed. It is not always available to the commander at the right time to make a decision.<sup>108</sup> These sources of friction produce chance events that cannot be eliminated, regardless of advances in technology.<sup>109</sup>

For example, because of poor intelligence the U.S. military was unable to stop the Iraqi Scud attacks in the Gulf War of 1990–1991.<sup>110</sup> Incomplete intelligence led to the bombing of the Al Firdos bunker by two stealth fighters on 13 January 1991, resulting in the death of more than 200 civilians. Inaccurate intelligence led to the bombing of the Chinese embassy in Belgrade on 7 May 1999. Targeting errors and incorrect information about rival

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<sup>106</sup> Brett T. Williams, *Effects-Based Operations: Theory, Application and the Role of Airpower* (Carlisle Barracks, PA: U.S. Army War College, 9 April 2002), p. 5.

<sup>107</sup> Michael I. Handel, *Clausewitz and Modern Strategy* (Ilford, Essex: Frank Cass Publishers, 1986), p. 69.

<sup>108</sup> Barry Watts, *Clausewitzian Friction and Future War* (Washington, DC: National Defence University, October 1996), p. 123.

<sup>109</sup> *Ibid.*, pp. 131–32.

<sup>110</sup> Eliot A. Cohen, *Revolution in Warfare? Air Power in the Persian Gulf* (Annapolis, MD: Naval Institute Press, 1995), pp. 66–78. 119.

groups in Afghanistan resulted in a number of attacks on unintended targets and in friendly casualties.<sup>111</sup>

During the Kosovo conflict of 1999, NATO had considerable difficulty in obtaining reliable information on Serbia's targets because of the country's jagged topography and abundance of natural cover. Another complicating factor was that the Serbs proved to be very agile and innovative in countering NATO's technological superiority in reconnaissance and surveillance. They concealed air defence radars and used surface-to-air-missile (SAM) ambushes quite effectively. This, in turn, forced NATO's pilots to fly above 15,000 feet, thereby impeding their ability to positively identify mobile targets. Hence, they had to focus on attacking fixed targets. The Serbs also used dummies and civilian vehicles, camouflaged military vehicles, and used civilians as human shields. NATO pilots conducted some 38,000 strikes over 78 days, but the results were far below expectations. Only 50 mobile targets, or less than 5 percent of the Serbian regular forces, were destroyed. In contrast, some 500 Serbian decoys were attacked and destroyed. NATO eventually reached its objectives, but only after Russia changed its position on the issue and Milosevic's sensitivity to public opinion in the country.<sup>112</sup>

In the major operation aimed to destroy al-Qa'ida and Taliban forces in the Shahi-Kot Valley and Arma Mountains southeast of Zormat in Afghanistan in early March 2002 (Operation Anaconda), the U.S. forces had two weeks' advance warning to prepare for the operation. The prospective combat area was only 6.2 by 6.2 miles. The U.S. forces collected all kinds of information through the use of air reconnaissance/surveillance, UAVs, and satellites. Yet some U.S. forces dropped right onto camouflaged al-Qa'ida compounds. Others sustained mortar fire while they were dropped or while moving, without the sources of fire being identified. The U.S. Army's Apache attack helicopters were hit by shoulder-launched Stinger missiles and light arms fired by the unseen enemy. Afterward, it was estimated that almost half of the al-Qa'ida forces were not attacked. The UAV operators had difficulties differentiating between enemy and friendly forces. The enemy compounds hiding al-Qa'ida were identified, but despite intensive bombing the enemy did not abandon them until they were overrun. Operation Anaconda illustrates that modern technology cannot ensure a perfect picture of the situation even in a small area of the theatre. A clever, agile, and tenacious enemy can fight successfully against a much stronger and more sophisticated enemy.<sup>113</sup> In the end, the U.S. forces won the battle, but that was due to their fighting spirit and high degree of training.

The need for perfect information and rapid decision making is a major weakness in the execution and assessment of the effects-based approach. Such attacks are less likely to succeed against dispersed, hidden, mobile, or politically sensitive targets. The effects-based approach depends on human intelligence to determine real effects on the enemy's overarching system and will. If such attacks do not produce immediate strategic decisions, enemy reaction could circumvent the effects.<sup>114</sup>

The principal method of analyzing the PMESII systems is the ONA—a process and product that integrates people, processes, and tools by using multiple information sources and

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<sup>111</sup> Cited in Cheek, "Effects-Based Operations: The End of Dominant Maneuver," in *Transformation Concepts for National Security in the 21st Century*, p. 78.

<sup>112</sup> Tira, *The Limitations of Standoff Firepower-Based Operations: On Standoff Warfare, Maneuver, and Decision*, pp. 48-49.

<sup>113</sup> *Ibid.*, pp. 45-46.

<sup>114</sup> Cheek, "Effects-Based Operations: The End of Dominant Maneuver," in *Transformation Concepts for National Security in the 21st Century*, p. 80.

collaborative analysts to build a common, shared holistic knowledge based on the operational environment. ONA is intended to inform decision makers, from the strategic to the tactical level, about the complementary effects and supporting missions and tasks that can be considered when applying the full range of diplomatic-informational-military-economic (DIME) actions to achieve specific effects on the enemy's will and capability in support of national objectives. Its purpose is to identify key links and nodes within the adversary's systems and to propose methods that will influence, neutralize, or destroy them and achieve a desired effect or outcome. ONA supposedly provides a more comprehensive view of the commander's area of responsibility. It allows the commander to gain better insight into complex relationships, interdependencies, strengths, and vulnerabilities within and throughout the adversary's political structure, military capabilities, economic system, social structure, and information and infrastructure networks. ONA relies on a comprehensive system-of-systems understanding of the operational environment's PMESII analysis.<sup>115</sup>

The effects assessment process uses various quantitative and qualitative measurements to assess whether predicted effects are actually achieved (MOEs—measures of effectiveness) and whether one's actions are progressing as intended (MOPs—measures of performance). Advocates of the effects-based approach explain that MOEs and MOPs can be both quantitative and qualitative. Quantitative measurements are preferred because they are less susceptible to subjective judgment. These quantitative measurements are divided into three groups: measures, metrics, and indicators. A measure is a data point that depicts the degree to which an entity possesses an attribute. In the effects-based assessment, the commanders are most interested in patterns and the changes to attributes, node, link, task, or action. A metric is defined as two or more measures; it shows trends; it reveals whether an attribute is more or less prevalent at various times. Metrics are specifically designed to show effects over time and are most applicable to assessing the effects on systems, nodes, and links. An indicator is a metric that can be compared to a standard or threshold; it shows a trend relative to a predetermined standard. These thresholds can be minimums, maximums, or both. Unlike measures and metrics, indicators give commanders a sense of whether they are making progress. But the relevant thresholds often cannot be known until sufficient measurements have taken place to show a pattern or trend, especially when assessing human behaviour.

Proponents of the effects-based approach prefer quantitative rather than qualitative measurements, because quantitative measures are supposedly far less susceptible to subjective judgment. Yet the fact is that both quantitative and qualitative measurements are equally subject to political manipulation, mirror-imaging, and biases. A more serious deficiency of the assessment concept is its almost total lack of sound intellectual framework. Proponents of the effects-based approach assume that the effects of one's actions can be measured precisely and almost instantaneously known to decision makers. Yet this is highly unlikely to happen. This heavy reliance on various quantifying measurements and fast feedback raises the issue of the utility of the effects-based approach, especially at the operational and strategic levels of war.

### **Problems and vulnerabilities**

In classical warfare, only a part of one's forces is in direct contact with the enemy, while some forces are used for protection of the flanks and rear and others are in reserve. In EBAO, one's forces are supposed to fire simultaneously at the enemy throughout the depth of

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<sup>115</sup> Pamphlet 7, *Operational Implications of Effects-based Operations (EBO)*, p. 9

the theater. There is also a belief that the new technologies will somehow magically lift the fog of war; hence, uncertainty will disappear and there will be no need to have forces to protect one's flanks and rear, or to have some forces in reserve in case something unforeseen happens.<sup>116</sup> This vision of the future war is based on the highly questionable belief that the new and advanced sensors will provide a perfect picture of the situation at all times. Hence, there will be sufficient warning to allow one's force to avoid close contact with the enemy. The new and lighter forces are not designed for close combat. Hence, it is uncertain whether they can actually survive in such a situation. EBAO proponents envision operations on land as an empty space similar to the air or sea rather than an environment with inherent complexities.<sup>117</sup>

The entire EBAO concept has embedded vulnerabilities, which an agile and skilful enemy can successfully exploit to his advantage. Among other things, EBAO depends on continuous transmission of broadband wireless communications from the controller to the sensor, and from the sensor to the controller and then from the controller to the shooter. These capabilities are not self-sustaining in any way. In contrast, classical conventional forces, such as naval forces or ground forces, can operate independently and for a relatively long time. The EBAO concept poses a one-dimensional threat to the enemy and therefore can be relatively easily countered or neutralized. Any time the opponent has to deal with diverse threats in several dimensions, he has great difficulties in coping with them.<sup>118</sup>

The survivability of the traditional ground or naval forces is not seriously endangered if their communications are disrupted or even completely cut off. They can rely on very rudimentary means of communications and still be effective. This is not the case with forces used for EBAO.<sup>119</sup>

## **Conclusion**

In its very essence, the effects-based approach represents the application of the targeting approach to warfare across all levels of war. It has always been understood that not all targets need to be degraded, destroyed, or neutralized. Hence, the effects-based approach is generally well suited to—and has proved highly successful in—attacking various components of the enemy's infrastructure, such as the land transportation network, maritime trade, and the electricity grid. It makes perfect sense to attack, not all potential tangible elements of a certain network, but only those key nodes that, if destroyed or neutralized, would cause a cascading effect throughout the entire network. The effects-based approach can also be highly effective in attacking enemy information systems, and computer networks in particular. However, things are significantly more complex when using the effects-based approach at the operational and, especially, strategic levels of war. The mix of tangible and intangible elements, combined with ever-present uncertainties, chance, luck, friction, and the unpredictability of the human element, makes the effects-based approach largely irrelevant. Tactical methods and procedures cannot be successfully applied at the operational and strategic levels of war. The accomplishment of a strategic or operational objective requires different methods of combat force employment and, therefore, different methods of planning and execution.

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<sup>116</sup> Tira, *The Limitations of Standoff Firepower-Based Operations: on Standoff Warfare, Maneuver, and Decision*, p. 38.

<sup>117</sup> *Ibid.*, pp. 38-39.

<sup>118</sup> *Ibid.*, p. 53.

<sup>119</sup> *Ibid.*, p. 38

Traditionally, a combat action at any level was aimed to accomplish a given military objective. Afterward, a series of tasks was deduced that would accomplish the objective. Clearly, the accomplishment of any objective should drastically change the situation in a given part of the theater or in the theater as a whole. It would logically have an effect on the accomplishment of the next-larger objective. It would also have a psychological effect on the mind of the enemy commander, the leadership, and the population. By replacing objectives with effects as the basis of planning, the proponents of EBAO are turning logic on its head. If adopted in practice, effects-based planning would result in applying essentially tactical techniques and procedures to the higher levels of war. The concepts of critical factors, center of gravity, and culmination point remain as valid today as they were in the past. Neglecting or, even worse, ignoring them would lead to failure and even defeat in a war against a strong opponent.

By inserting effects, and associated procedures for their prediction and measurement, between the objective and the tasks, EBAO advocates have in effect seriously weakened the importance of objectives in the entire decision-making and planning process. Yet the link between objectives and subordinate tasks should be maintained at all times; otherwise, there is no way to properly measure one's progress toward mission accomplishment. Hence, it is simply wrong to arbitrarily sever that link by inserting effects and redefining the task as an "action," as EBAO advocates have done. Based on logic and common sense alone, there is little value in inserting ambiguous and fuzzy effects between far more specific and measurable objectives and tasks.

The highly complex situations that exist at the operational and strategic levels of war cannot be arbitrarily and artificially reduced to six or more systems, and then these systems further reduced to a few of what EBAO enthusiasts call nodes, links, vulnerabilities, and interdependencies. As with any machine, any errors (and they will inevitably be made) in determining nodes or links would cause ripples and, invariably, undesired effects through what the EBAO advocates call the "system." Also, an attack against a specific node carried out at the wrong time or in inappropriate ways could generate many undesired effects in a system. Moreover, the enemy has a will of his own and will react to one's own actions independently, unpredictably, and in some cases even irrationally. These well-known facts are apparently ignored by EBAO proponents.

Properly applied, traditional decision-making and planning processes incorporate all the supposed advantages of the effects-based approach. The claims of EBAO proponents that operational planning as currently applied cannot ensure the synchronized employment of both military and nonmilitary sources of power are only partially true. Current planning procedures are designed to ensure that all instruments of national power are properly sequenced and synchronized in a campaign. If these procedures are not followed or are poorly applied, that does not mean that they need to be abandoned. EBAO proponents' suggested solution, even if well thought out, might not be successful either. In fact, the emphasis on effects will immeasurably complicate the entire planning process and execution. Objectives-based planning is complex enough, as the history of past campaigns and major operations amply shows. One would, in fact, prefer that the entire effects-based approach stand on its own rather than be integrated with objectives-based planning. These two planning concepts are essentially incompatible and cannot be effectively meshed.

The current increasing emphasis on the use of various metrics and indicators is a trend in the wrong direction. Even at the tactical level it is difficult to predict, much less precisely

measure, effects because of the mix of tangible and intangible elements in the situation and human actions and reactions. The progress of one's major operation or campaign cannot be precisely measured by using various quantifiable methods, no matter how advanced these methods might be. Apparently, EBAO advocates learned very little from the pitiful experiences of the United States in using various mathematical methods to assess the progress of the war in Vietnam in the 1960s. Likewise, the Soviets' experience in using quantifiable methods to assess what they called the "correlation of forces" at the strategic level and in using various operational-tactical calculations is not an example to be followed. To be sure, there is great value in applying mathematical analysis in many areas, but this is primarily true in the design of weapons and sensors and, to some degree, at the tactical level of war. The higher the level of war, the more difficult it is to apply these methods as a guide for the commander's decisions and subsequent planning.

## **EBAO – THE FINNISH APPROACH**

**LCol Kari Pietiläinen**

This paper concerns the Finnish approach to Comprehensive Approach, EBAO and Network Enabled Defence as these concepts participate to the transformation of the Finnish Defence Forces. These concepts inform the traditional roles of the Finnish Defence Forces, and so we first must address the direction of development of the Forces.

The White Paper of 2004 sets out guidelines for the development of the Defence Forces. The next White Paper will be expected to be out 2008 or early 2009. National defence remains to be the focus, but alongside that we seek to develop capabilities to join an alliance, if a political decision on this is made sometime in the future. We will keep the contribution to International Military Crisis Management Operations in current level, approximately 800-1000 persons.

The territorial defence system, general conscription and the defence of the entire national territory remain the predominant and essential features of our defence system.

Some examples of parameters given in the White Paper:

- The mobilisation strength of the Defence Forces will decrease to 350 000 by the year 2008.
- In the 2004 White Paper it was also decided that the defence budget will remain at the current level (some 2.3 billion Euros).
- Approximately one third of the budget should be used for procurement of material.
- The peace time personnel should be reduced to less than 17 000 persons, and the Defence Forces should relinquish unnecessary facilities and real-estates.

### **National competencies and strengths**

Three national competencies and strengths have been essential in developing our Defence solutions. Firstly, a long tradition in total defence – or Homeland Security – means that Finnish ministries and interagency elements already have established cooperation practices and initial capabilities. National Defence is the ultimate task in which the Defence Forces are supported by all ministries and interagency elements. In normal conditions and emergency situations Defence Forces' role is to support other agencies.

Secondly, our operational art is based on Mission Command. In command we always emphasize the “what” that needs to be accomplished and we leave “the how” to our subordinates – centralized planning and distributed execution was a reality for us already during the Winter War. Despite these traditions, we have taken NATO Guidelines for Operational Planning as a Planning tool. Our Next Defence Plan will be made using principles of that Joint Publication. There may be yet some EBAO flavour to it.

The third element is of course innovation and expertise in information technology which is recognized worldwide. All this makes it possible to take steady steps to use new technologies and create a network enabled defence.

## **Tasks of the FDF as of 1 January 2008**

Due to limited resources, the Finnish Defence Forces' capabilities are being developed in such a manner that they can be flexibly used in preventing and repelling a wide set of security threats on domestic area and abroad. This of course has to be done without compromising the fulfilment of the main task which is the military defence of the country. This approach has also been highlighted in the coming Act on the Defence Forces.

The Defence Forces' expertise, equipment, infrastructure and situational awareness constitute valuable assistance to other agencies. In practice, such support is being increasingly requested. There is no need to go into details about the roles of national armed forces in support of the civil powers, for the protection of infrastructure, and other tasks that are usually devolved to other levels of authority. The equipment, training and knowledge of the terrain of every man and woman of the Finnish Defence Forces will continue to be a key source of social resilience during emergencies and crises, but they cannot substitute legitimate authorities for very long periods. That's why the Defence Forces are supposed to cooperate in unison with other authorities for securing the functions vital to society whether during a natural emergency or in times of national peril.

## **Wartime Defence Forces 2008**

The Defence Forces war time strength will be 350 000 people by the year 2008. This will be divided between the manoeuvre and territorial forces. The former includes around 100 000 soldiers and the latter around 250 000 soldiers.

The total strength of the **Army** manoeuvre forces is estimated at around 60 000 soldiers. The Army territorial forces is estimated to be around 225 000 soldiers. In the development of the **Army**, the main area of focus is in the new capabilities such as the protection of vital state infrastructure, army readiness brigades and air defence **systems**. We will also begin the development of the Army long range precision engagement capability as part of the Joint Strike Capability program.

Two-thirds of the **Navy and Air components** are manoeuvre forces. In the **Navy**, the main units are two fast attack craft squadrons, three mine-countermeasure squadrons, six minelayers, four patrol boats, mobile coastal troops and some fixed and mobile coastal artillery units. In the **Air Force**, the main units are four fighter squadrons and required air operations centres and command posts, as well as air surveillance and support units.

**The Territorial Forces'** operational area will cover the whole country, and are used mainly for **defensive and delaying operations**. One leading role in their deployment is the **protection of vital functions of the society** as a whole and in support of other Finnish agencies.

**The Manoeuvre forces** are used nationwide but only in areas where **concentration of force is needed to form a centre of gravity**. They are the **spear-head** of the Defence Forces and they are capable of conducting joint operations everywhere in Finland. In the future they will also have joint long-range precision engagement capabilities.



## **Transformation - EBAO**

Finnish pragmatism and the permanence of defence challenges are antithetical with transformational leaps. Finnish defence adaptation, both material and conceptual, usually follow a process of incremental change which is based on existing capabilities, national competencies and strengths, as well as on realistic and proven innovation. Furthermore, the Finnish Defence Forces will not compromise operational readiness and that is why all new ideas have to be proven by experimentation before they are considered for application. The way ahead for the Finnish Defence Forces is therefore predictable and is described in the list of priorities below.

- Finland is refining the Territorial Defence Concept, which will be based on conventional warfare including international engagement and Comprehensive Approach. EBAO possibilities will be considered through continuing research.
- The aim is to utilize national know-how to use C4I as a force multiplier in order to strengthen the other capabilities and add productivity by improving the integration level step by step, the Finnish Defence Forces will develop a common C4I system that enables a network centric approach, common operational awareness and secure operative technical services to support and run joint operations.
- The Finnish Defence Forces will sustain the current ISR capability by improving the integration level which enables long range fires by real time targeting capability.
- Force reduction will be compensated by the addition of new capabilities to the arsenal.

## **Comprehensive Approach - A Finnish way**

It goes without saying that the world around us has become more complex and unpredictable. Actions and reactions in the security environment have effects and undesired effects that can have broad implications on our everyday life. Therefore, we need capabilities that are flexible, deployable and even scalable to meet the challenges.

One significant capability we need to bring up to date, is multinational interagency co-operation. For the past 10 years we have seen a significant increase in the demand for co-operation between numerous multinational authorities and agencies in crisis management and Homeland Security. Interagency co-operation is much more than just the ability to share information and intelligence between various communities of interest. The ability to communicate with each other and the ability to share situational awareness and understanding would be a good start.

## **Homeland security**

The traditional Finnish Total Defence concept from the Cold War era has been revised to meet the requirements of today's security environment. The Strategy for Securing the Functions Vital to Society was approved by the Finnish Government in November 2003. The first revision was published in 2006.

This strategy defines the roles and tasks of each Ministry in planning, preparation and execution of crisis management in Finland – including common and agreed threat and crisis scenarios. Co-operation and interaction is common practice today, and even the most difficult situations – also the defence of Finland – are practiced semi-annually by all necessary authorities in a national war game.

In principle this mechanism is the Finnish version of the Effects Based Approach to Operations. It does not have all the elements to conduct Effects Based Operations, but it is a comprehensive approach *in which all components of national power are brought to bear in a very structured and coordinated way.*

### **Wide-ranging security threats - a challenge for the entire society**

In order to properly prepare for these new threats and respond to them, effective interagency cooperation and pre-agreed arrangements are required. In order to address more efficiently these threats Finnish Government approved in 2003 and again 2006 a Strategy regarding the Securing of Vital Functions of our society.

In comparison to the time of traditional Total Defence approach new threats and this new strategy have brought the military more and more in position to support other security authorities rather than vice versa. This is largely the reason why the preparedness for wide-ranging security threats is taken closely into consideration as the Finnish Defence and its capabilities are being developed these days.

The role of the Defence Forces in dealing with the different kinds of threats to the internal security is clear. We support other authorities as required. Constant change of information between the FDF and other authorities is a daily routine. The Police, under the Ministry of Interior, is responsible for the internal security. This includes also all activities against terrorism and serious crime. If the use of military force is required, Defence Forces support police with professional personnel. The use of conscripts is very limited.

In the most extreme cases the FDF can support the Police also with the air force, naval vessels and air defence units as we have done during different international meetings. The Defence Forces will also support rescue authorities with troops and equipment, like special vehicles and helicopters. This support should not jeopardize the military defence of our country.

### **A Practical Example – Networking at tactical and operational levels**

Development towards more effective networking of different security authorities began in Finland in the late 1990s. It was then decided to establish a tactical communication network for interagency functions. It was based on the TETRA-standard and national IT know-how. This network enables our police, military, frontier guard, fire and rescue and other services to cooperate by secure means at the tactical level. It connects also key personnel at national level across all ministries and central agencies.

On top of the TETRA tactical network we have quite recently started to use a prototype secured network for linking the Finnish security authorities at the operational level for communication and information sharing.

## **Network Enabled Defence (NED)**

For Finland, Network Enabled Defence is still a working title and it is not yet proven reality. It is based on the development of the FDF Territorial Defence Doctrine and long term planning. Development of these new capabilities requires significant resources.

Finland spends about a third of its Defence budget in materiel procurement. That makes our procurement budget the third largest in the EU – or in Euros spent per capita. The FDF intend to use almost 20% of all procurement money to go to C4ISR. That is how serious our commitment to Network Enabled Defence is.

NED describes how future networks with improved and integrated information and weapon systems enable command and control of joint and territorial operations and collaboration with Finnish agencies in securing the vital functions of the society. Our troops designated to international duties will also get leverage from NED as interoperability with NATO and EU capabilities is one key requirement.

Because we believe in incremental change, it is essential to balance current and future capabilities so that operational readiness is maintained at all times.

We now turn to two interlinked developmental pathways – creating capabilities for Joint and Territorial operations and creating capabilities for Finnish interagency collaboration.

## **SHIFT SHared Information Framework and Technology**

In the “Multinational Experiment 5” (MNE 5) exercise, Finland leads one of the Limited Objective Experiments named Shared Information Framework and Technology (SHIFT).

The SHIFT promotes transparent information sharing among all participants in international operations. In essence SHIFT is not a system but an ability to exchange information between different information domains. Our intention is to prove that a pool of common security information, that is provided by a trusted party and accessible to all, would benefit everyone taking part in the operation.

Furthermore, the FDF itself are under process of rationalizing their C4I infrastructure and architecture in order to be better linked with our cooperation parties at an operational level both nationally and internationally. We are aiming to be able in 2010 to operate a common security network called SecNet Environment which will be interlinking different authorities involved in securing Finnish society.

The future integrated C4I system will consist of an integrated environment which enables free data transfer, processing and information management. It will be in place by 2012 covering all services and branches. The iC4I system is in essence a system of systems that will have enhanced survivability through mobility and network redundancy and will also enable the near real-time C2 of all services as well as integrated sensor and weapon systems.

### **Experiences from the MNE series (EBAO part) are....**

National experimentation, incremental development and tradition have been reconciled with multinational cooperation both at the experimental and operational level. The MNE series of experiments have greatly helped the Finnish Defence Forces rationalise and conceptualize their approach to EBAO and related concepts. The outcomes from this series of experiments are

- Enhanced Multinational CD&E; such as EBAO processes
- Collaborative working method; network enabled - network centric and distributed
- Experiences from Effects Based Assessment
- Experiences from Red and Green teaming capabilities within the Operational Planning Process
- Enhanced multinational interagency- strengths and weaknesses assessment
- Visibility to joint operations in crisis management (objectives, effects, actions, tasks)
- Visibility to analysis and simulation tools
- Improvement of bilateral and multinational co-operation.

### **Conclusion : FIN – EBAO Development**

The conceptual integration of EBAO is proceeding incrementally. More generally speaking, the Comprehensive Approach as defined in this paper, that is, as a function of coordination between many different actors through network-enabled capabilities, will be much more visible in the White Paper 2008.

As Finland elaborates on new approaches, it will continue experimentation through the MNE series of exercises, as well as its partnership with NATO. Among other enhancements predicted in the development of the Finnish Armed Forces, the CD&E function is an important priority, but so is the development of the Finnish operational art and understanding of EBAO through the Finnish Defence University's role in research, teaching and doctrine development. Finally, Finland can be expected to continue military cooperation in the Nordic region. In essence, the Finnish Defence Forces remain true to their essence without neglecting potential new avenues of thinking about operations.

## **ANALYSIS OF THE BRITISH APPROACH TO EBAO**

**Frederic Labarre**

The fundamental point about the effects-based approach is that the effect is not an end in itself; it is a means to a final and hopefully decisive outcome. The Joint Doctrine Note 1/05, published by the Joint Doctrine and Concepts Centre in Wiltshire (UK) explained in detail the methods of this approach. This chapter aims at briefing the reader about the presentation given about the British approach to EBA, but it also aims at updating this vision with new information. It is “a way of thinking and specific processes that, together, enable the integration and effectiveness of the military contribution within the Comprehensive Approach.”<sup>120</sup>

The first element of note is that the British EBA is a response to the increasing complexity of the operational environment, and especially the close proximity of hostile elements or spoilers to urban and civilian poles of activity. It must also be said that the EBA is an attempt at grappling with the irregular nature of contemporary asymmetric warfare in order to develop the methods to reintroduce decision in the use of military force.

The second element to stress may be taken as a critique of Dr. Vego’s point in p. 16 of this publication, where he suggests that

The operational objective is defined as a constituent of the desired operational end state realized through the achievement of one or more “operational effects.” The military operational end state is, in turn, described as the desired military situation derived from strategic direction, taking into account the end state and objectives of the other instruments of power.

While this assessment is not far off the mark, the intention of it is to elevate military-civilian cooperation to the operational level.<sup>121</sup> There is also the recognition that the use of force needs to be more “outcome-oriented” rather than “process-oriented”. For example, while Joint Doctrine Note 4/05 stresses the use of ISTAR<sup>122</sup> (intelligence, surveillance, target acquisition and reconnaissance), it by no means suggests that the methods employed to reach a specific outcome will be kinetic or coercive. It may also call on diplomatic, non-governmental or civilian resources to bring about the desired outcome. The ISTAR notion given here I understand as a colloquial for the analysis, planning, execution and assessment principles inherent in the UK effects-based approach.

To reappraise the criticism of Dr. Vego outlined above, the nature of the operational objectives has not necessarily changed, but their functions have. The problem of the process-oriented outlook is that it favours military planning for traditional force-on-force operations, where the traditional Clausewitzian principles of friction, centres of gravity and policy outcome are addressed. In short, we plan so as to meet roughly symmetrical forces in battle, and we use the same planning techniques (here I would say defence management) to bring about a decisive outcome on a different kind of warfare.

In essence, the only effect sought by military action is to have the opponent sue for peace. The logic is “we will engage in military activity in such a way that the opponent will want us to stop.” When the opponent relies on you *continuing* your activities, or, as the

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<sup>120</sup> Joint Doctrine Note 1/05, (Wiltshire, UK: Joint Doctrine and Concepts Centre, Sept. 2005)

<sup>121</sup> Joint Doctrine Note 4/05, (Wiltshire, UK: Joint Doctrine and Concepts Centre, Jan. 2006), p. 1-1.

<sup>122</sup> *Ibid.*, p. 1-11.

Brahimi Report tells us, when you have “spoilers”<sup>123</sup> who depend on the continuation of hostilities for economic, prestige or honour reasons, it becomes evident that the objective will not be met. Effects-based or outcome-oriented actions will look at the situation on the ground to determine what effects can generate the conditions that will make a cessation of hostilities possible, or better yet, ensure the preservation of the national interest.

Looking at the problem of martial activity in this manner may not yield significant nuances if one looks at the problem from a purely regular and symmetrical point of view. But in the age of democratized warfare, where the corporal of a conventional force must have strategic awareness, and where private individuals sometimes wield as much coercive power as certain states, hostilities are not always proceeding from purely political motives, as the Clausewitzian maxims would suggest. The problem of state failure proves the point that sometimes, aggression and hostility is de-politicized; groups and individuals who have learned to live in conditions of state failure for a decade or more, such as in Somalia and Afghanistan, may look on to the promise of peace as a threat to a way of life. This can only be understood if there is proper analysis and intelligence assessment taking place.

Moreover, the solution will not always be to engage such individuals and groups militarily, as this is their very reason for being. Creating the conditions whereby the state has the monopoly over means of coercion requires effects that may be totally different. In this, the military tool may not only be inadequate, but it also may be insufficient. So the UK EBA seeks at eliciting an outcome issued from a political desire at the highest level, from which the activities have to be categorised according to whether they are conducive to an effect that will produce the required conditions for this political wish to materialise. For example, the desire for safety from terrorism may require the establishment of a state that controls its borders and internal affairs. This is what would be called a decisive condition in British parlance. These conditions were supported by effects that emerge out of certain activities. The question to ask is whether the activity undertaken will produce the sort of effect that will create the conditions necessary for the end state to take shape. An activity must create the supporting effects that yield the decisive conditions that lead to the desired outcome.

Put another way, and borrowing from the Somalia experience once again, will the elimination of a warlord (activity) have the effect of denying the means of coercion to a certain group (effect) that will enable this vacuum to be filled by a legitimate state authority (condition) so that sovereignty is reinstated at the highest levels in Somalia (political end state, or outcome sought)? Clearly, it is not a single, but many simultaneous and coterminous activities that need to be implemented for these effects and conditions to emerge.

Therefore the question is not simply one of sophistication in planning formulation, but also one of coordination and communication between actors. In this, the British approach is nearly identical to that of the Danes. Effects-based approach to operations is a way of thinking operations, but the implementation has to take place through coordination. This added element (common sense in many ways) does not neglect the absolute need for a “shared understanding” of the problem to solve. This means that, across the spectrum of actors, the appreciation of the challenges in theatre must meet with a common purpose and perhaps a common end-state.<sup>124</sup> This is not stated explicitly in British documentation, but the implication of this is far reaching and can create problems in the field. For example, the well-

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<sup>123</sup> Report of the Panel on UN Peace Operations (Brahimi Report), A/55/305-S/2000/809, 20 August 2000, p. 4, paragraphs 21-22.

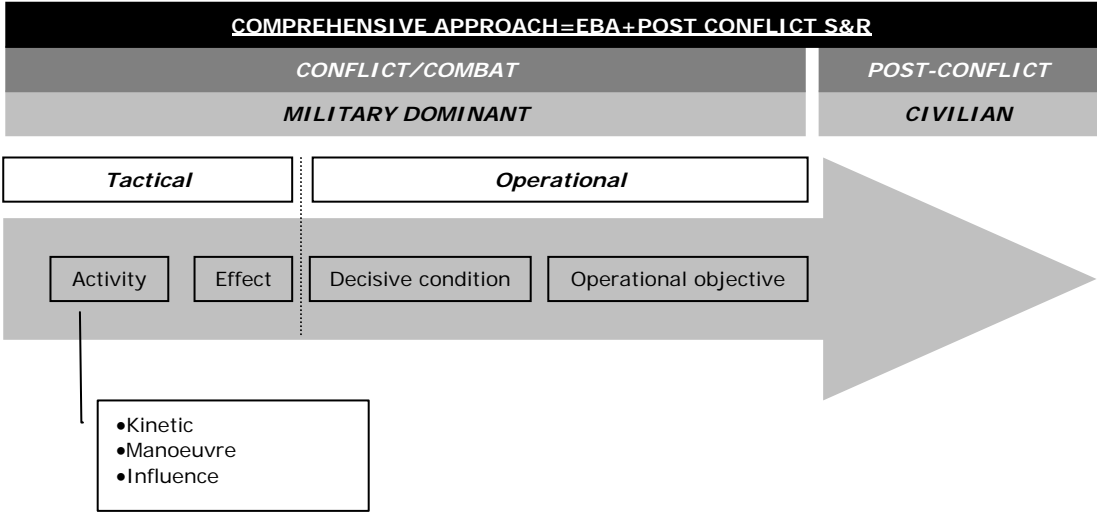
<sup>124</sup> Joint Doctrine Note 4/05, (Wiltshire, UK: Joint Doctrine and Concepts Centre, Jan. 2006), p. 1-10.

known requirement of certain non-governmental organizations (the Red Cross and Red Crescent Societies usually come to mind) to remain independent of belligerents or intervening forces will necessarily mean that a consensus as to the effects desired and for which end goals will be difficult to coordinate.

When the coordination factor is added to deal with civilian agencies and actors especially, the British speak of a comprehensive approach. Again, the terms and definitions are very similar to that of other NATO nations. In fact, the only thing that makes consensus is this; that the EBA – however defined nationally – comprises measures undertaken by the military under martial conditions nearly exclusively. When the civilian component arrives to support stabilisation and reconstruction efforts, the need for coordination means that the EBA turns into a question of comprehensiveness.

This is a very apt word to choose, because in the French sense of “comprehension” one finds the meaning of “understanding” while the English meaning means “togetherness and wholeness”. The Comprehensive Approach includes military EBA, but extends the coordination and communication aspect to cover the civilian input into reconstruction and stabilisation. The Danish and Finnish approaches stress the need for cooperation and communication above all, and the British approach acknowledges this trend also.

**Fig. 1: The EBA and Comprehensive Approach**



The spirit of the use of the Comprehensive Approach echoes the criticism of many NGOs and civilian agencies that claim that military solutions are often counterproductive in an asymmetric conflict context, or in conditions of state failure. The Joint Doctrine Note 4/05 recalls that “the ability to generate and maintain Campaign Authority should be enhanced through the CA [author: Comprehensive Approach] placing greater emphasis on the visible use of wider instruments and agents, rather than military and security activity.”<sup>125</sup>

This outlook remains extremely novel. The need to develop a “comprehensive approach culture” reflects both the lukewarm affection of certain NGO and civilian actors for the military and vice versa. On the one hand, British strategic and policy-making culture favours coordination at the Whitehall level, and even takes certain measures so that decision-makers are not unduly biased in favour of one governmental organization over another (for example, certain levels of briefs and reports are produced without attribution as to the

<sup>125</sup> Joint Doctrine Note 4/05, (Wiltshire, UK: Joint Doctrine and Concepts Centre, Jan. 2006), p. 1-13.

sponsoring ministry).<sup>126</sup> The call of H.M. MOD for greater CA “thinking” across departments and with the military is therefore a bit surprising.

British policy will evolve as the EBA and CA evolve as concepts. Recently, Gen Mattis’ (Commandant of NATO’s Allied Command Transformation and the Commandant of US Joint Forces Command, the creator of the effects-based concepts) repudiation of the effects-based approach as a focus of conceptual research and development has been felt around the security community. Hence, the “EB” stance has given way to the Comprehensive Approach as a method of cross-discipline coordination, while the skills of analysts and concept developers returns to more traditional topics. It is not difficult to imagine the feelings of those who may have thought they had found the holy grail of strategic and operational formulation, but neither is it difficult to understand the feelings of those less convinced of their “discovery” at the evident confusion of terminology, definition and intentions. They will be relieved at seeing the shift towards comprehensive approach.

As Brooke Smith-Windsor wrote recently in a NATO Defense College Research Paper, “EBAO [EBA for short] is perhaps the modern epitome of Hannibal’s famous saying, ‘We will either find a way, or make one.’”<sup>127</sup> This choice of quote also demonstrates the desire of the military authorities to retake the initiative from the civilian side in the running of operations in theatre, even in post-conflict phases. Much like the criticism levelled by Dr. Smith-Windsor at the concept, the British method suggests, by its focus on the CA, that the human element is perhaps more important than the “systematic” approach seeking definite answers. In conclusion, it should be seen as no surprise, therefore, that in drafting this article to support the proceedings of the EBAO Seminar held in Tartu in March 2008, the author could not find a live link to the Joint Doctrine Note 1/05 explaining the British approach to EBA. No internet search will relinquish any direct document of that nature from the Joint Doctrine and Concepts Centre.

Although it seems that the effects-based approach as a concept is done for, this does not mean that the analyst, strategist or reviewer should close their eyes to new possibilities. Methods may yet arise that will enable the Alliance to prepare against its current and future foes, but no method is better proven than think, think and think again.

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<sup>126</sup> William Plowden, Ed. *Advising the Rulers*, (Oxford, UK ;New York, NY, USA : Blackwell,1987).

<sup>127</sup> Brooke Smith-Windsor, “Hasten Slowly: NATO’s Effects Based and Comprehensive Approach to Operations: Making Sense of the Past and Future Prospects”, *NDC Research Paper* 38, Rome, July 2008, p. 3.



