SHOULD THE AUSTRALIAN ARMY ADOPT THE CONCEPT OF EFFECTS-BASED OPERATIONS?

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by

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

SHOULD THE AUSTRALIAN ARMY ADOPT THE CONCEPT OF EFFECTS-BASED OPERATIONS,
by MAJ David J. Wainwright, 68 pages.

Effects based operations (EBO) are defined in this thesis as the synergistic employment of all instruments of national power, as interdependent and supporting systems to achieve desired national policy. EBO are a continuous process, applied from the strategic to the tactical level, to promote a whole of government strategy against an adversary, achieving a common end state with the greatest speed and least cost. Acknowledgement by the military that both lethal and nonlethal effects can be used to achieve a desired national endstate is essential. The Australian Army should employ the concept of EBO because the products of an effects based approach are enhanced, rapid, holistic, and agile solutions that are cost efficient, reduce the exposure of Australian soldiers, and harness the efforts of government to achieve Australian endstates. Thus established, any approach by the Australian Army to adopt EBO must be under the auspices of the entire Australian Defence Force (ADF) and with active government interagency involvement, particularly the Department of Foreign Affairs and Trade (DFAT). While EBO present many advantages, implementing EBO within the US or Australian militaries will not occur without some cost. EBO is premised on the establishment of “jointness” and the ability to engage in an inter supporting nature with governmental agencies. Senior leadership at every level, ranging from military through to national government must take ownership and embrace this concept for it to become successful. This appreciation must then permeate throughout their organizations and become institutionalized. The adoption of EBO will also mean a change of culture and mind-set.

ACKNOWLEDGMENTS

Researching any concept that is developing and has limited published research will always present challenges. That said, the professional guidance and helpful assistance by many individuals and departments have mitigated such challenges. In an attempt to express gratitude the following acknowledgements are made.

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US joint force perspectives and an insight into the development of EBO was significantly enhanced by the support from Mr. Graham Kessler (J9 concepts team, US JFCOM). In particular access granted by Mr. Kessler to JFCOM workshop notes on the subject of EBO proved of extreme value. Dr. Alan Ryan, the Senior Research Fellow

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Finally, the patience, support and understanding given by my family, in particular wife Kate, greatly assisted the preparation of this thesis.

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ACRONYMS

ADF	Australian Defence Force
ADFP	Australian Defence Force Publication
CDF	Chief of the Australian Defence Force
DIME	Diplomatic, Information, Military, and Economic instruments of national power
EBO	Effects-Based Operations
HQAST	Headquarters Australian Theatre
IDA	Institute for Defense Analysis (US)
JAWA	Joint Advanced Warfighting Program (US)
JFCOM	U.S. Joint Forces Command
JMAP	Joint Military Appreciation Process (Australia)
MAP	Military Appreciation Process (Australia's equivalent of the US military decision-making process)
MDMP	US military decision-making process
NEBA	National Effects-Based Approach
ONA	Operational Net Assessment (Concept also under development by US JFCOM)
SECDEF	U.S. Secretary for Defense

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CHAPTER 1

INTRODUCTION

In the post-Cold War era, many changes in doctrine, technology, and approach are being considered and implemented by militaries throughout the world. One of the concepts emerging in the U.S. military focuses on desired military and other effects at the different levels of war. This concept incorporates a holistic approach to national objectives and the effects needed to achieve such objectives. Like most emerging developments from the US, it is highly likely that the development of an effects-based concept would have applications for other militaries and their governments.

The subject of Effects Based Operations (EBO) as an emerging US concept is currently being explored by, amongst others, the US Army (US Army transformation process) and the US Joint Forces Command (JFCOM) (as part of Exercise Millennium Challenge 2002). In essence, EBO are the adaptive application of military and other instruments of national power to achieve specific tactical, operational, and strategic outcomes in peace and war. Put simply, EBO seek to defeat an adversary's strategy and resolve, instead of merely achieving attrition of his armed forces.

As detailed in the recent Australian white paper, *Defence 2000*, "Australia's most important single strategic relationship is its alliance with the United States" (Australian Defence White Paper 2000, 34). This importance implies that Australia must keep abreast of US advances, both conceptual and technical. EBO are an emerging US concept, with a likelihood of being important to US-Australian interoperability and a high probability of

being beneficial for the synergistic and economical achievement of Australia's national objectives.

While EBO are a concept that is being expressed as both new and in development, recent media interviews have revealed that EBO are currently being performed today by US forces as part of Operation Iraqi Freedom. The very presence of EBO in current US-led coalition operations serves as the catalyst for coalition militaries to have, at minimum, some understanding of this concept.

The need for Australia to understand, and indeed examine, the benefits of EBO are also implied in current Australian strategic policy, that details the need to invest in military systems that impact on the Australian-US Alliance. This policy states that: "the challenge in alliance management over the next few years will include sustaining our military capacity to operate with the United States by investing in necessary systems and exploring new forms of practical cooperation, for example, in the collaborative development of new systems and platforms" (Australia's Strategic Policy 1997, 26). It is the intent of this thesis to research EBO as a developing concept and examine the advantages they may offer to the Australian Army.

Thesis Research Question

Effects-based operations (EBO) are an emerging concept within the US military. What are EBO? What are the implications and what are the potential benefits to the Australian Army in adopting the concept of an effects-based approach?

Purpose of the Thesis

The purpose of this thesis is threefold: first, it will identify the historical basis and background to EBO; second, it will identify why EBO are new and detail the applications

of EBO to the US military; third, it will highlight the implications and the potential benefits EBO offer the Australian Army. The thesis focuses on all available research on EBO. To mitigate the identification of any service differences or indeed biases towards this topic, the research will default whenever required to a joint approach. The primary question to be addressed is, should the Australian Army adopt EBO? Secondary questions to be considered include:

1. What is the basis to the EBO concept?
2. How is EBO defined?
3. Why are EBO new, what benefits are driving this concept and what are the costs?
4. Are there any comparisons between the concept of EBO and existing Australian military doctrine?
5. What are the benefits and costs of an EBO approach to the Australian Army?

Limitations

The author acknowledges that EBO may also have application for both the Royal Australian Air Force and the Royal Australian Navy. Despite this, the focus of this thesis will be the Australian Army. This limited focus has been taken due to the author's background, available literature, and limitations on length. While also acknowledging that US-led coalition forces (UK, Australia, and US) are conducting EBO as part of Operation Iraqi Freedom, this finding occurred during the closing stages of research to this thesis. The author is not privy to either planning or any feedback of this operation; therefore, such information cannot be included in this thesis.

Consequent Approach to the Thesis

While restricting its scope to focus principally on the Australian Army, this thesis cannot completely ignore the Australian concept of a "whole of government approach." In essence this Australian term closely relates to the US joint term of "(national) unity of effort." The current definition of EBO given by USJFCOM (US JFCOM is the current proponent for developing this concept) implies that "unity of effort" is a cornerstone of EBO. This infers that EBO will only effectively exist if all government agencies are engaged. The Australian model of a "whole of government approach" is, therefore, consistent with this understanding of EBO. This thesis will, therefore, include essential Australian government factors associated with EBO.

CHAPTER 2

LITERATURE REVIEW

The concept of EBO is in its embryonic stage and published material for this research has been limited. Useful literature is also limited due to a misunderstanding ('hijacking?') of the EBO term (concept) within defense circles, that, in many ways, see EBO as an Air Force means of justifying strategic strike capabilities. Perceptions are further clouded by thoughts that the term EBO is just another military "buzz word" signifying no real change.

Researching any emerging concept will always create challenges, especially when an array of misconceptions exists. Discounting any service centric view, that may distort an objective outlook on the EBO concept, has mitigated restrictions of this nature.

This chapter outlines the three main information sources utilized in developing this thesis: (1) papers and monographs on EBO; (2) Australian doctrine, both current and emerging concepts; and (3) concepts and research that support the development of EBO.

Papers and Monographs on EBO

Papers and monographs represent the bulk of research completed on the topic of EBO. Theses are of US origin and range from studies completed at any of the service war colleges through to white papers produced by the USAF.

Williamson Murray, "An Historical Perspective on Effects Based Operations," 2001. Murray provides an historical background of EBO through examining three distinct campaigns: Ulysses S Grant's Vicksburg campaign in the Civil War; the 1940 German breakthrough on the Meuse; and the Allied combined bomber offensive in World War II. Murray defines EBO as an approach-centric and thinking-focused concept. He sees the

essence of EBO as “assessing and adapting operations to suit actual conditions before those conditions dramatically change” (Murray 2001,x).

US JFCOM J9, Draft paper “ A Concept Framework for Effects Based Operations” 2001. JFCOM synthesizes a broad range of ideas extracted from works by the Institute for Defense Analyses/Joint Advanced War-fighting Program (JAWP), and service concepts for future operations in this paper. The paper’s joint focus provides clarity to the meaning of EBO and outlines why, from a holistic sense, EBO are important. JFCOM presents an important EBO model in this paper, articulating EBO as a cyclic process, with the functions of knowledge, effect, application, assessment, and adjustment.

Gwen Linde et al. “New Perspectives on Effects Based Operations”, 2001. This paper is a collective summary of the US JAWP EBO team’s effort to develop a set of metrics for the concept of EBO. It focuses on EBO and the military instrument of power in the form of a joint force. The paper addresses four basic questions: (1) What are EBO? (2) Why are EBO so difficult? (3) Why are EBO worth doing? and (4) How can EBO be made useful to the joint force commander? An important factor highlighted here is the relationship between EBO and the ability to achieve decision superiority.

Paul K. Davis, “Effects Based Operations, A Grand Challenge for the Analytical Community,” 2001. Davis defines EBO as operations conceived and planned in a systems framework that consider the full range of direct, indirect, and cascading effects. His paper states that the current methods of analysis and modeling are inadequate for representing EBO. He suggests that we first need to look into a change of mind-set, new theories, and methods if we are ever going to sharpen our understanding and employment of EBO.

Gary H. Cheek, "Effects Based Operations, The End of Dominant Maneuver," 2002. As suggested by the title, this paper provides balance to the EBO equation through a ground maneuver perspective. Using historical references, the paper cautions against EBO, which are based primarily on strategic air strike capabilities, and highlights the key role maneuver warfare plays in achieving decisive results. Cheek looks at EBO from strategic, operational, and tactical aspects, stating that the true employment of EBO will rest at higher echelon levels. He concludes that the analytical nature of effects-based thinking is suitable for strategic decision making, but less applicable at tactical levels, where standard operating procedures and hard training are the true determinants of success.

Allen W. Batschelet, "Effects Based Operations, A New Operational Model," 2002. Based on initial research by the JFCOM draft white paper on EBO, Batschelet's paper provides a US Army perspective on EBO. The paper addresses the utility EBO offer the US Army, compares EBO with the US Army's AirLand Battle Doctrine, namely target value analysis, and highlights the need for a common joint definition of EBO. The author believes that EBO are not new. On the contrary, the EBO concept is an evolutionary refinement of Army intent-focused doctrine. His paper suggests the Army can make positive impacts on EBO through initiatives, such as conducting conceptual thinking leadership training for all junior officers.

Dr Marris McCrabb, "Concept of Operations for EBO," undated draft. While this paper has a particular bent towards the USAF, it does contain a sound analysis of EBO. In particular, the paper states that, regardless of the method, the goal of EBO remains

attaining the commander's intent quickly, decisively, with minimal cost to friendly forces, and with minimum unintended damage to the adversary.

US Air Combat Command White Paper "Effects Based Operations," 2002. Although Air Force centric, this paper highlights that the EBO concept is not well understood; that it is not a new way of war fighting; and that it is a way of thinking that involves all elements of national power.

Carl A. Barksdale, " The Network Centric Operations- EBO Marriage," 2002. Barksdale looks into EBO from the perspective of the operational commander needing details on what makes an adversary give up. This allows planners to develop a plan and assess the associated indicators of the desired operational effect. Barskdale uses an historical analysis of three losing sides' reactions to identify any patterns that may be used as measures or as indicators that desired effects have been achieved.

Australian Doctrine

Current Australian Doctrine

This thesis utilizes two key Australian documents in relation to current policy and Australia's approach to the conduct of military operations: the Australian Defence White Paper, "Defence 2000"; and The Australian Army, Land Warfare Doctrine 1, "The Fundamentals of Land Warfare 2002."

"Defence 2000." "Defence 2000" provides an assessment of Australia's international security environment, defines Australia's strategic objectives and tasks, and provides an outline of capability enhancements required for developing Australian forces for the future. This document is important because it provides the strategic roadmap in which EBO can be employed within the Australian Defence Force.

"The Fundamentals of Land Warfare." "The Fundamentals of Land Warfare" provides a strategic focus for Army doctrine. It explains the Australian Army's relationship with Australia's national security and Australia's military strategy. One of the key aspects of this document is that it provides direction for the Australian Army to become a concept-led and capability-based fighting force.

Developing Current Australian Doctrine

Other key Australian literature providing a joint emphasis and future conceptual perspective includes the Australian Defence Force (ADF) "Joint Warfighting Concept" (DRAFT) and the ADF "Force 2020" version 8.3 (Working DRAFT). These documents, while developing, embrace holistic decision dominance concepts that essentially support an effects-based approach. It is likely that recent Australian experience from coalition operations in Afghanistan and Iraq will assist development of these documents.

Concepts and Research Which Support the Development of EBO

Official Notes from the EBO Workshop, September 2002. An EBO workshop (sponsored by JFCOM) was held 10-12 September 2002 and examined various beliefs, influences, and recommendations in regard to EBO. The workshop included over fifty participants from all sectors of the defense community, of varying demographics. The results, while unprocessed, provide a healthy insight into the contrasting thoughts on EBO.

William Thomas McDaniel, "Effects Based Operations" JFCOM, EBO workshop and Millennium challenge 2002, 9 September 2002. This paper links current JFCOM ideas with results of the above-mentioned EBO workshop and findings as part of

Exercise Millennium Challenge 2002. It defines EBO as a set of actions planned, executed, and assessed, with a systems perspective, that creates the effects needed to achieve policy aims via the integrated application of various instruments of power. The paper highlights that EBO are always part of a national or multinational campaign to translate policy into actions to create a desired end state.

Dr. Jim Miller, "Operational Net Assessment: What Are the Real Challenges, (draft working paper), 2002. Dr. Miller's working paper describes the operational net assessment (ONA) as a system also under development by JFCOM to support EBO. In essence ONA is a process that develops a knowledge base to support the planning and execution of EBO. ONA is a process that uses a coherent knowledge base to link national foreign policy objectives and power to apply integrated diplomatic, informational, military, and economic options that influence an adversary's perceptions, decision making, and will.

CHAPTER 3

RESEARCH METHODOLOGY

The methodology employed in this paper to research EBO will be conducted in three key stages. These stages are the conceptual research into EBO, EBO and the analysis for the US military, and EBO and the analysis for the Australian Army. Where applicable, common reference will be made to applications EBO offer the US Army that have relevance to the Australian Army. To help establish a comparative analysis between Australian organizations and the US, example models will be presented as part of this chapter.

The focus of the conceptual research stage will be identification of the history of EBO, an outline of the EBO concept, a definition of the concept, identification of what is new about EBO, and the proposed benefits that make this concept attractive. While there are various definitions of EBO currently circulating within the defense community, since there is, as of this writing, no doctrinally approved definition of EBO, this conceptual research stage will propose a definition of EBO that will be used throughout this thesis.

An established definition of EBO, an understanding of the concept, and an appreciation of what is new about EBO will lay the foundations for investigating the applications EBO offer US and Australian organizations. The intent of this thesis is to examine the benefits EBO offer the Australian Army. It therefore should be established that this approach might have some influence on proposing a suitable definition for EBO.

The next stage is the analysis of EBO as they pertain to the US military. Key references that will be used during this stage are JFCOM research papers on EBO and

unpublished data from the September 2002 EBO workshop, again coordinated by JFCOM. Research during this stage will initially concentrate on a holistic perspective of EBO within the US military and political arenas. This approach is important in that it will allow the author to comment about the EBO concept without any service-centric bias.

Having the benefit of any established trends from the joint community, the focus of this US-centric stage will then shift from the US joint application of EBO to the US Army. Research will include any approach adopted by the US Army in understanding EBO and how or if this concept is nested with current US Army guidance. Research also includes any training initiatives or likely doctrine changes that may be associated with the employment of EBO in the US Army. The EBO and the US military analysis stage concludes by establishing both trends and a framework from which the emphasis can transition to the Australian Army.

The third and final stage is EBO and applications for the Australian Army. This stage addresses the essential elements of this thesis and determines why the Australian Army should or should not look at the employment of EBO. The intent of this stage is to provide an insight into current or emerging Australian doctrine, which may or may not be EBO related, and determine if the EBO concept provides any real advantage to the Australian conduct of land operations.

A key methodological aspect to this thesis is an understanding of both the US and Australian structures, organizations, doctrines, and, indeed, cultures. It should be also appreciated that this thesis is not just about EBO and the respective military organizations from the US and Australia. EBO is a holistic approach to serving national policy;

therefore, the methodology in this paper must also incorporate aspects of each country's instruments of power.

A detailed insight into the political structure will not be provided in this paper; however to negate any possible confusion, explanatory notes will be used to explain any key peculiarities. There are, however, key political factors worth highlighting between both countries, such as the contrasts between the concept of "DIME" (diplomatic, information, military and economic instruments of power, also referred to as a "whole of government concept" within Australia) in Australia and the US.

As one would expect, being a superpower allows the US the ability to harness all aspects of its DIME to influence the achievement of national objectives. Australia, on the other hand, a middle power nation with a good diplomatic standing has limitations on its ability to strongly influence other aspects of its DIME, in particular from an economic perspective.

With the understanding of the difference in DIME influence, it is also important to establish the structural differences between the militaries of each country. This is more than simply size, as this also pertains to organizational structure, interoperability, levels of operations, etc. Diagrammatic examples of the Australian and US levels of war are represented in figures 1 and 2 respectively. In simplistic terms the diagrams represent the strategic, operational, and tactical levels within each country. The key difference with the Australian model is at the operational and high-echelon tactical levels. Essentially the Australian Defence Force (ADF) has only one operational headquarters, HQAST (Headquarters Australian Theatre), unlike the US, that is broken into globally focused combatant commands.

Similarities do exist between both the Australian and US structures, in particular at the low-end tactical and at the strategic (governmental and political) levels. At the low-end tactical level one can refer to the similarities that exist between the standard infantry brigade within each Army. At the strategic level commonalties exist between the manner in which direction is given for strategic military objectives. The US has the US President and his National Security Council (NSC) and Australia has the Australian Prime Minister and his War Cabinet. To assist US audiences in understanding Australian structures further, the Australian model for the conduct of operations is attached at Appendix A.

Figure 1. Australian Levels of War (ADFP 4 2000, 4-1)

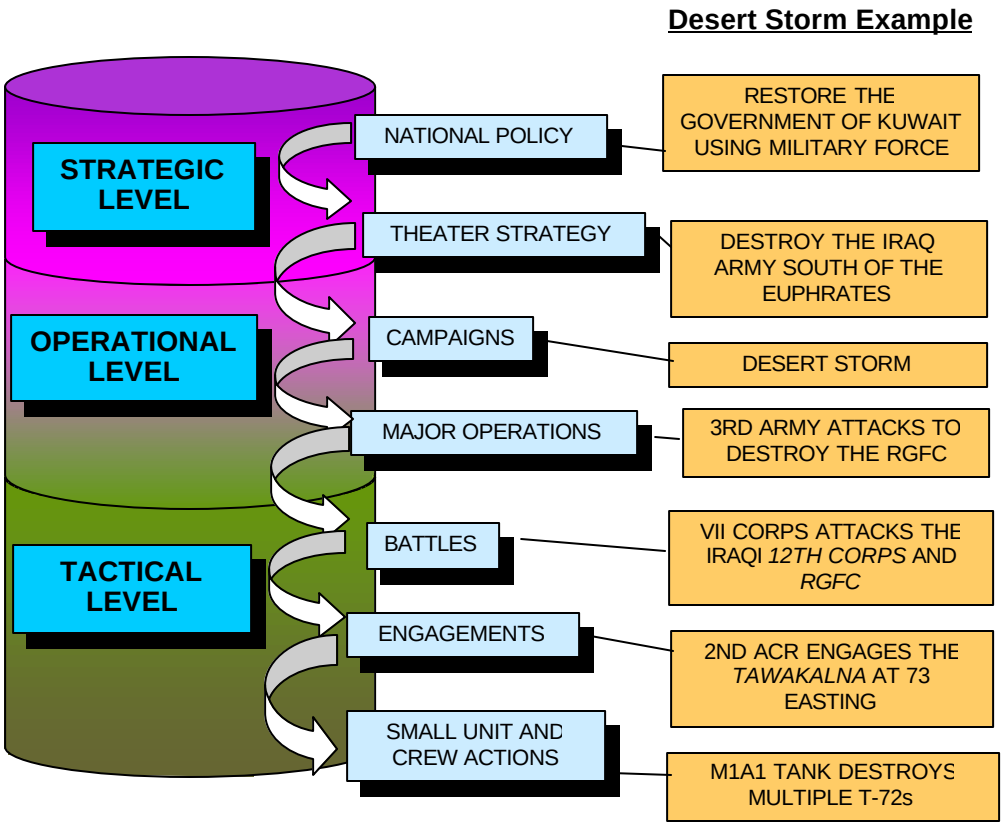

Figure 2. U.S. Levels of War. (US Depart of the Army FM3-0 20002b, 2-3)

CHAPTER 4

ANALYSIS

Historical Background to EBO

> The genesis of EBO began with an analysis of the Gulf War air operations targeting, outlined in a monograph by the then Brigadier General David A Deptula (2002,2).
>
> Colonel Gary Cheek

Over the past decade, there has been increasing interest and research into the concept of EBO. Historically the term allegedly originated during the initial night air campaign at the start of Operation Desert Storm. USAF Major General David Deptula, regularly credited as being a key player in the development of the concept of EBO, argued during Operation Desert Storm that technological advances in airpower drove the design of the EBO concept. Specifically, stealth aircraft and precision-guided munitions enabled the first application of this concept. As the leading air planner in the war, Deptula encouraged the Joint Force Air Component Commander's staff to change their targeting paradigm and focus on desired effects instead of simply target destruction (Williams 2002, 2).

Others believe that, to a large extent, the drive for an EBO approach was born from experiences in Vietnam. "The EBO movement and the passion of its advocates stem from wartime experiences of young US Air Force officers who were appalled by the frequent mindless and ineffective use of airpower in Vietnam" (Davis 2001, 2).

While contrasting views exist regarding the history of EBO, a common thread is that the term has an Air Force connotation associated with its origin. Unfortunately, as

stated by Murray, this early emphasis on air power employment has tended to give the concept itself the flavor of an air force procurement program (Murray 2002, 4).

While it may be true that the origins of EBO appear to be Air Force-centric, recent developments and interest have occurred throughout the wider U.S. Defense community. These include developments based on insights gained from the 2000 war game series of Rapid Decisive Operations (RDO),[1] Exercise Unified Vision 2001, plus various limited objective experiments and other sources. The development of EBO has also included the synthesis of a broad range of ideas extracted from works by the Institute for Defense Analyses/JAWP, service concepts for future operations, inputs from the Joint Warfare and Analysis Center, and other sources.

Historically, the true trigger to accelerate the development of an EBO approach, which, in turn, has permeated through the US national strategic levels, occurred on 11 September 2001. The tragic events of 11 September signified a perception change to global security and served as the catalyst for EBO. This change highlighted the need for innovative approaches to protect national interests, in particular national security. This is reflected indirectly in many documents, in particular, the US Quadrennial Defense Review Report, published on 30 September 2001. In this report, the US Secretary of Defense (SECDEF) described the critical importance of adapting the national security apparatus of the US to new challenges (Rumsfeld 2001, 2-3). The US services saw EBO as a possible solution to the SECDEF's request and have collectively focused working on the conceptual design.

The current US service proponent developing the concept of EBO is US JFCOM. JFCOM describes EBO as "how a better understanding of the adversary and the increased

involvement of other national agencies will lead to better-reasoned options to engage potential adversaries and the ability to adapt more quickly in the dynamic environment of future conflict" (JFCOM 2001, 4). JFCOM's intent to refine the conceptual design for EBO will be pursued in future workshops and exercises, such as Olympic Challenge 2004.

The Basis of EBO – Effects Thinking and Understanding of the Adversary

> It is possible to increase the likelihood of success without defeating the enemy's forces. I refer to operations that have direct political repercussions, that are designed in the first place to disrupt the opposing alliance, paralyze it, that gains us new allies, favorably affect the political scene, etc. If such operations are possible it is obvious that they can greatly improve our prospects and that they can form a much shorter route to the goal than the destruction of the opposing armies (Clausewitz 1993, 92-3).

EBO is not new. The operations mentioned above by Clausewitz relate directly to the conceptual intentions of EBO. Clausewitz emphasized the importance of examining indirect factors to enhance the prospects of success. To articulate this insight offered by Clausewitz diagrammatically, assist in the conceptualization of EBO, and gain an appreciation of research by current EBO theorists, refer to figure 3. This figure is not an exhaustive or complete list of the elements that constitute a conceptual explanation of EBO, nor is it presented as a suggested model for EBO. It is intended to express the nonlinear functionality and complexity of the EBO concept.

Conceptual Elements of EBO

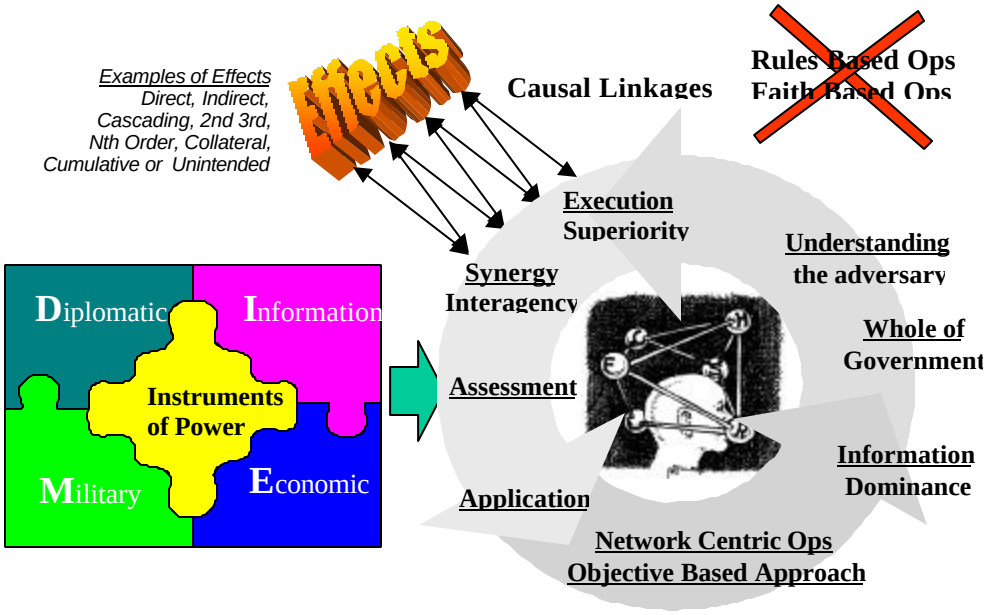

Figure 3. Conceptual Elements of EBO

By name, one of the essential elements of EBO is the term “effect.” Use of the term effect or effects implies the results of an action or inaction. Results may be expressed as planned, accidental, or unintended. For the purpose of this thesis, the term effect and the broad range of prescriptive effects is defined in table 1.

Table 1. Explanation of the Various Forms of Effects

Effects	The physical, functional, or psychological outcome, event, or consequence that results from specific military or non-military actions (JFCOM 2001, 6). Other definitions that support this selected definition include; Effects are the operational- or a strategic-level outcome that functions is intended to produce. (US Air Combat Command 2002, 2-1). A condition or occurrence traceable to cause. Synonyms: result, purpose, goal, upshot, intent, outcome, consequence (US Webster dictionary); and that which is produced by some agency or cause; a result; a consequence (Australian Maquarie dictionary 1988, 299).
Direct Effects	These are immediate, first-order consequences of military *and non-military* actions unaltered by intervening events or mechanism between act and outcome, and are usually immediate and easily recognizable. (JFCOM 2001, 6)
Indirect Effects	These are the delayed and/or displaced second- and third-order consequences of military and non-military actions. They are often accentuated by intermediate events or mechanisms to produce desired outcomes, which may be physical or psychological in nature. Indirect effects also tend to be difficult to recognize and are often a cumulative or cascading result of many combined direct effects. (JFCOM 2001, 6).
Cascading Effects	An indirect effect that ripples through an adversary system, often affecting other systems. Typically, a cascading effect flows from higher-to-lower levels of employment and is the result of influencing nodes that are critical to multiple adversary systems (ACC White Paper 2002, 27).
2nd, 3rd, nth Order Effects	A causes B causes C causes. . .For example, disruptions in the electric grid. . .yields rolling blackouts. . .which disrupt petroleum deliveries to airfields…which disrupt air operations (ACC White Paper 2002, 27).
Collateral Effects	Outcomes that result when something occurs other than what was intended. These outcomes may be either positive or negative to the original intent. In one sense, collateral effects may be the incidental direct or indirect effects (usually unintentional) that cause injury or damage to persons, objects or systems. In a broader perspective collateral effects cover a wide array of possible downstream results. (ACC White Paper 2002, 27)
Cumulative Effects	The aggregate result of many direct or indirect effects against an adversary. Typically, a cumulative effect flows from lower-to-higher levels of employment and occurs at the higher levels; however, it may occur at the same level as a contributing lower-order effect. (ACC White Paper 2002, 27)
Unintended Effects.	Unanticipated effect that could impact the campaign or have overall negative consequences. The destruction of the adversary's electric grid affects the command and control of his military operations, but also disrupts power to water treatment plants, which leads to increased levels of disease. (ACC White Paper 2002, 27)

Introduction to EBO Thinking

A key and vital aspect of EBO is thinking. To some this will be the standout feature of EBO. Murray explains that EBO must rest on effects-based thinking—in other words, on assessing and ultimately adapting operations to suit actual conditions before

those conditions dramatically change (Murray 2001, 1). This belief has been echoed in the outcomes from the recent JFCOM MC02 exercise, where comments were made such as “EBO has the greatest value in thinking through the operations” (JFCOM Workshop 2002, 26).

Thinking in terms of effects is vital to gain an appreciation of the benefits of EBO. Commanders and staffs at every level must think effects-based if they wish to operate in an effects-based environment. Linde states, “Effects based thinking requires the explicit and comprehensible linking of all actions to operational and strategic outcomes” (Linde et al. 2001, 6). Planners and decision-makers should have a clear idea of what must be accomplished and an ability to examine the broad content of options available to achieve the desired end state. The JFCOM J9 concepts team explains that effects-based thinking requires planners and commanders to understand the enemy as a “complex and adaptive system of systems” consisting of all the facets of his national power, not just his military forces (JFCOM 2002, 11). The concept of EBO is thus as much about how the commander and staff think about operations as how they employ capabilities.

EBO thinking should be viewed as the solution to linking the achievement of ends with appropriate means. It should not align to any standard cognitive pattern, as this would restrict the ability to develop insightful and creative solutions. The key to EBO is an acquired cognitive aptitude among leaders and staff to understand the difference between ends and means and to articulate that difference at and between every level of action. “Effects” are the bridge to understanding this critical difference between the

desired end (or interim) state of a system and the actions needed to alter the system (McDaniel 2002, 3).

The critical obstacle that must be breached by the military to truly adopt EBO-style thinking is military culture. Military people too often lean towards lethal or kinetic effects because of their experience, education, comfort levels, and conditioned approach to problem solving. The challenge for the military is to gain an understanding of the benefits of nonlethal actions by either the military or other forms of national power. McDaniel explains that the ability to think in broader terms by the military will often lead to enhanced success.

> While the direct, immediate physical effects are the most observable in the battlespace, they are rarely the most relevant effects to a military campaign. Instead, the attainment of operational behavioral effects is far more likely to lead to campaign success. In short, the combatant commander cannot let the targeting process be driven by physical effects on targets. Instead, the commander should focus on the operational behavioral effects within the battlespace and tailor the military campaign to achieve those effects. (McDaniel 2002, 9)

Understanding an Adversary

EBO thinking is linked directly to an understanding of the adversary. One of the changes associated with EBO is a shift from targets related primarily to an adversary's means to those concerning his will or behavior and his associated decision processes. EBO envision a more comprehensive understanding of the adversary, determination of desired effects, application of the full spectrum of military and nonmilitary capabilities, assessment of the resultant outcomes based on the effects they create, and rapid adaptation by the joint force.

As explained by the JFCOM J9 concept team, leaders, both military and civilian, have always had a desired effect in mind when they embarked on an important endeavor or task. However, EBO offer significant potential for fundamental gains because:

> 1. EBO emphasizes a comprehensive understanding of the adversary as a complex, adaptive 'system-of-systems' against which EBO is essential in achieving the desired strategic outcomes.
> 2. Better intelligence, surveillance, and reconnaissance (ISR) enable this understanding, as well as an intelligence focus on determining intentions, motivations, and causes of events.
> 3. This predictive analysis will occur in a collaborative environment that increases interaction and breaks down stovepipes, enhances parallel planning, ease of reach back to robust staffs, and access to key centers of excellence in real time. This increased ability to identify an adversary's critical vulnerabilities and more accurately anticipate his actions and reactions will allow us to identify more and better options for changing his behavior. (JFCOM 2002, 6)

EBO are premised on a comprehensive understanding of the adversary. This level of understanding requires a comprehensive analysis, supported by teams of experts (cultural, behavioral, technical, economic, and military), that enable the production of an interrelated analysis of the adversary. This sophisticated approach does not prevent uncertainty or imply the absence of the fog or friction of war on future battlefields. It would be naïve to think otherwise. Fog, friction, and uncertainty will continue to characterize the battlefield. Linde argues that successful commanders do not try to eliminate the friction of war. On the contrary, they accept these frictions and learn to work through them (Linde et al. 2001, 7).

Murray also reinforces this belief in his diagnosis of the "complexity of the modern battlefield." He explains that EBO focus on strategic and operational outcomes rather than inputs, offering real possibilities for the successful conduct of military operations in the future. Murray also underlines that such operations will always be

difficult. “Effects-based operations of this kind will not eliminate fog, friction, and ambiguity from war. Those elements will continue to characterize the arena of human conflict.” (Murray 2001, 1)

The concept of EBO does not claim any ability to lift the fog of war. It does, however, offer improvements to the challenges of information. EBO may serve to improve information management challenges by focusing sensors on specific areas to match decisions, much like current Army doctrine posts the commander’s critical information requirements (Cheek 2002, 13). This process of information management and decision superiority over an adversary is in many respects built on the Boyd Cycle.[2]

JFCOM Conceptual Model of EBO

The JFCOM J9 Concepts White Paper graphically expresses this in the EBO cycle model, shown in figure 4 (JFCOM 2002, 4). The EBO cycle is a continuous process. The fundamental elements of this cycle are: an understanding of the adversary, the ability to identify and articulate a desired state, an ability to think laterally to develop a strategy that promotes effects (to achieve the intent), and then taking actions to monitor and adjust this application through agile observation.

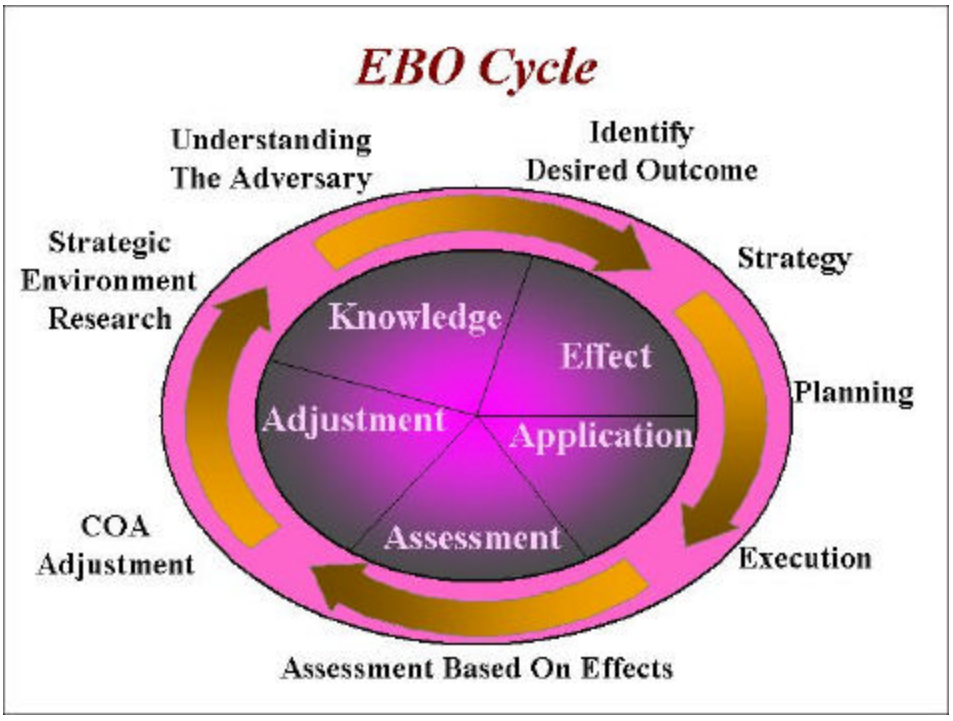

Figure 4. JFCOM EBO Cycle (JFCOM 2002, 4)

A summary of the EBO cycle descriptions is detailed in table 2. This table is not presented as complete original descriptions of the EBO cycle by the author. It represents a summarized combination of research comments combined with the author's understanding of the EBO process.

Table 2. Aspects of the EBO Cycle

Knowledge	A comprehensive insight, into the nature of the adversary to a broader and more in-depth level by the fusion of available information from all national agencies on an adversary's environment: political, military, economic, cultural, social, informational, and infrastructure influences. The adversary is then studied as a complex system of interrelated systems. Key links and nodes in those systems, as well as the adversary's cohesive strengths, weaknesses, and vulnerabilities, are identified. In order to change an adversary's actions, one must accurately determine what the adversary values, and then put that at risk or take it away.
Effect	In consonance with other national agencies, action[3] taken to break the cohesion of the adversary's key systems and compel the adversary to submit or change his course of action.
Application	Determining which capabilities from the full range of national instruments of power (Diplomatic, Information, Military and Economic (DIME), will be most effective in achieving the desired effects. Note this application process is fluid as changing environments create the need for changing applications.
Assessment	Timely actions and observations, which create the necessary feedback to guide any necessary adaptation to operations. The assessment process encompasses more than just traditional attrition-related assessments that measure success in terms of battle damage assessment (BDA) or re-attack recommendations. The assessment process emphasizes the creation of effects in the battlespace, how those effects impact the systems of the adversary, and how those actions taken to produce effects have or have not contributed to moving the state of the conflict closer to the commander's desired outcome.
Adjustment	The ability to assess that the existing conditions are different from their pre-conflict status, and make appropriate adaptations in plans and actions. The intellectual ability to discriminate against effects, which no longer contribute to the achievement of national goals, while concurrently exploiting opportunities, which present themselves as directly supporting the achievement of, desired end states.

Understanding where effects fit into a traditional objectives-based approach is an important factor in understanding the EBO cycle. An objectives-based approach relates clearly stated objectives to proposed actions, and then refines the relationship in operational plans through a strategy-to-task linkage. An objectives-based approach is defined in the recent 2002 US Air Power Research Institute paper as, "an approach which focuses on the intended results or outcomes of actions, as they apply to the commander's intent" (US Air Power Research Institute 2002, 3).

EBO take the objectives-based approach one step further, allowing for an examination of the causal linkages and effects through which actions lead to objectives. It is the relevance of the causal linkages with respect to the EBO assessment process that determines whether an action taken will achieve the desired effect. This is further explained in figure 5, a JFCOM concept diagram.

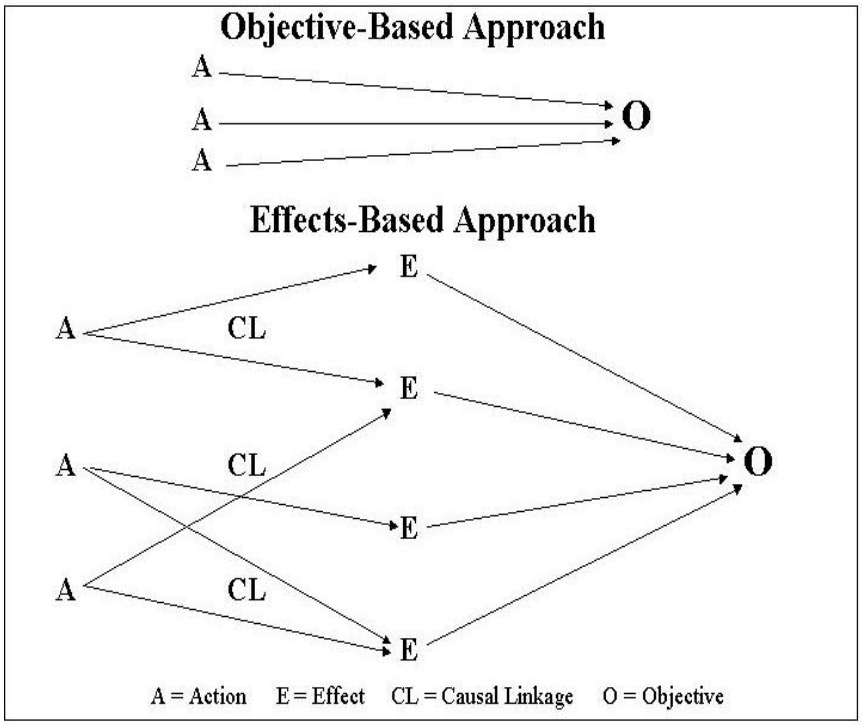

Figure 5. Causal Linkages (JFCOM 2002, 8)

The evolutionary step provided by EBO is the recognition that more than one effect (outcome, event, or consequence) may be produced by a single action (ACC White Paper 2002, 6).

Defining EBO

In understanding EBO, one key factor that will now be established is a definition of this concept. EBO has generated much discussion within the US services and joint community and in the Australian defense communities. These discussions have generated debates and a range of interest about EBO. Some authors present EBO without actually defining the term “effects” or what is meant by “effects-based.” Others react negatively to the idea of EBO based on preconceptions, institutional biases, and prejudices. Table 3 details EBO definitions from fifteen different sources. The list is not exhaustive, as definitions with an overarching service bias have been discarded. To establish linkages and common themes, sections of each definition have been highlighted.

Table 3. Versions on the Definition of EBO

A set of **actions** planned, executed and assessed—with a **systems perspective**—that creates the effects needed to achieve **policy** aims via the integrated application of various **instruments of power** (McDaniel 2002, 2).
A process for obtaining a **desired strategic outcome** or "effect" on the enemy through the **synergistic,** multiplicative, and cumulative application of **the full range of military and nonmilitary capabilities** at the tactical, operational, and strategic levels. An "effect" is the physical, functional, or psychological outcome, event, or consequence that results from specific military or non-military actions. (USJFCOM 2002, 4)
A set of **actions** planned, executed, and assessed with a **systems perspective** that considers the effects needed to achieve **desired aims or outcomes** (JFCOM Workshop, 47).
A **continuous** exchange of ideas or opinions (with feedback), 1) on particular issues, 2) to seek clarity, and 3) with a view to reaching a dynamic agreement." (Murray 2002, 2)
A tool to support parallel attacks on critical targets to cause paralysis in an enemy's "**system of systems**." The desired effect is to control an enemy by eliminating his capability to employ forces. (Deptula 2001, 14)
A method of determining the correct application and integration of **national power** to achieve specific effects and **outcomes** within the bounds of acceptable risk. Effects can physically, functionally, or psychologically **impact the enemy** and coerce or compel him to change his behavior and eventually lead to **desired outcomes**. (Williams 2002, 4)
Operations conceived and planned in a **systems** framework that considers the full range of direct, indirect, and cascading effects which may-with different degrees of probability-be achieved by the application of **military, diplomatic, psychological, and economic instruments** (Davis 2001, 7).
EBO seeks to **alter an enemy's actions** by affecting his capabilities and decision-making while avoiding undesired effects and mitigating or exploiting unexpected effects (Cheek 2002, 13).
EBO is defined as the application of military capabilities to realise **specific and desired operational and strategic outcomes** in peace, tension, conflict and post-conflict situations. It is a way of thinking about problems, and a way to plan operations to solve those problems. It is more than just targeting and destroying an adversary's capacity to fight – but it also includes these aspects of warfare. (Australian Department of Defence 2002b, 17)
Effects-based operations represent the identification and engagement of an enemy's vulnerabilities and strengths in a **unified focused manner**, and uses all available assets to produce specific effects consistent with the **commanders intent** (Batschelet 2002, 19).
EBO is the physical, functional or psychological outcome, event or consequence that results from specific **military or nonmilitary actions** at the tactical, operational and strategic levels (Marine MAGTF Seminar Notes 2002, 2)
EBO is in an approach-a way of **thinking-to planning**, executing, and assessing military operations that focuses on the results of military operations- and the explanation of how those results came about-rather than the actions-sorties flown, rounds fired, or tons of relief materials delivered-of military units…. the goal of EBO is tracing and understanding how those **actions influence** an attacker or enemy commander's **behavior**. (McCrabb 2002, 1)
A way of **thinking** or a methodology for planning, executing, and assessing operations designed to attain specific effects required to achieve desired **national security outcomes**. An "EBO methodology" improves our ability to use all **elements of national power** to achieve **national policy** goals. (ACC White Paper 2002, 11)
EBO are **coordinated sets of actions** directed at shaping the **behavior** of friends, foes, and neutrals in peace, crisis and war (Smith 2002, 108).
Effects-based Operations (EBO) is defined as the application of **military and other government capabilities** to realise specific desired **operational and strategic** outcomes in peace and war. (Australian Department of Defence 2002a, 15)

While each definition highlights one or many key aspects of EBO, no definition appears to include all aspects of the EBO concept. For example, some focus on the strategic and operational levels, implying that EBO does not exist at the tactical level. Other definitions focus on the thinking aspects of EBO, without embracing the integration aspects.

Some common key phrases or words used to define EBO include instruments of national power, systems perspective, synergistic, and continuous and desired national policy. Using this basis, a suggested definition of EBO incorporating key aspects of available research and tailored to Australia is:

> EBO are the synergistic employment of all instruments of national power, as interdependent and supporting systems to achieve desired national policy. EBO are a continuous process, applied from the strategic to the tactical level, to promote a whole of government strategy against an adversary, achieving a common end state with the greatest speed and least cost.

The intent is not to present this definition as a new revelation. Essentially all aspects of this perspective exist in some parts collectively, while other aspects appear in isolation. To assist in understanding, this definition will be explained further. The terms “synergistic employment” and ”interdependence” highlight the importance of creating a harmonious relationship with all national agencies and services ((for example, the Australian Department of Foreign Affairs and Trade (DFAT) and the Australian Defence Force (ADF)). This relationship should exist without the presence of any tribal dominance, each agency and service mutually ensuring that all their available resources are energized for the purpose of achieving common outcomes.

“Supporting systems” indicates that EBO do not result from an isolated process with a single focus. The intent is to acknowledge the complexity of each service and

agency, the levels of operations, and the matrix of relationships that EBO can generate. The term “continuous” directly relates to JFCOM’s EBO cycle and the evolutionary linkage to the Boyd OODA cycle. Emphasis of the strategic through to the tactical levels reflects the need to embrace the holistic approach and emphasizes the importance of tactical linkages to strategic objectives. The inclusion of “whole of government” reflects the cornerstone of EBO and the improvement in both understanding an adversary and harnessing actions to serve the achievement of national goals.

New Perspective as a Result of EBO and Their Benefits

With an established EBO definition and concept, the new perspective offered by EBO will now be established. As highlighted at the beginning of this chapter, service-centric biases can cloud research. For example, one Air Force perception is that EBO will reduce the need for “boots on the ground.” Deptula expresses this in his statement: “Effects-based operations improves on current warfighting methods, because it reduces force requirements, casualties, forward-basing needs, and conflict duration” (Deptula 2002, 21).

Essentially EBO offer a new evolution to four key aspects: thinking, linking, integrating, and adapting to produce superior, cost effective national solutions. These findings are reflected by JFCOM as:

> 1. Strategy-to-task linkage is improved through a better understanding of the adversary;
> 2. More and better-reasoned options are presented;
> 3. Unintended, as well as intended, potential outcomes are examined;
> 4. The success of tactical-level actions are measured by their contribution to operational and strategic-level objectives; and
> 5. The ability to adapt quickly during rapidly unfolding situations is improved. (USJFCOM 2002, 3)

EBO provide a powerful unifying and holistic conceptual methodology that commanders and staffs can apply to all operations across the spectrum of conflict. It is an evolutionary refinement and broadening of current doctrine to a full dimensional concept of thinking, linking, integrating, and adapting. Focused by the stated intent, commanders and staffs will think in an effects-based manner in order to plan, develop courses of action, analyze, execute, and assess effectively, while adapting their actions in an interactive environment.

EBO Thinking

EBO thinking infers an examination of factors outside the standard template thought process to which personnel in the military have become accustomed. The ACC White Paper asserted that implementing the EBO methodology requires planners to begin their efforts with an entirely different mind-set than that generally associated with traditional military planning (ACC White Paper 2002, 22). Creative and adaptive EBO products will only be possible with the adoption of agile creative approaches combined with a disciplined focus on the desired ends and on the effects required to achievement.

Thinking must be focused and energized towards a certain objective. As explained by Linde, this approach to thinking will enable commanders to prioritize and fuse data into a context that will ensure the relevance, timeliness, and accuracy of decisions (Linde et al. 2001, 47). Such an approach requires the mental ability and discipline to break away from preconceptions. Murray states that EBO must rest on effects-based thinking—in essence this is an assessment and adaptation of operations to suit actual conditions before those conditions dramatically change (Murray 2001, 1). Breaking away from the traditional military paradox of thinking may be one of the key

obstacles to establishing an effects-based approach. Research and findings support this perspective of the JFCOM EBO concept team.

> We will also have to overcome the propensity to view adversaries from a US perspective. Existing doctrine already discusses the need to view the adversary from his social and physical perspective, yet to do so is difficult, as we have demonstrated in Iraq. We are improving at this, but even better understanding of potential adversaries as a system-of-systems and greater effort to break out of our monocultural encapsulation are still necessary to fully implement EBO. (JFCOM 2002, 36)

Thinking EBO is the key enabler to executing EBO. Once mastered, this approach will reduce susceptibility to the complexity of modern warfare. Once mastered it will offer commanders a methodology to cope with the nonlinear nature of modern war (Williams 2002, 7). This will only be achieved by viewing operations through an holistic lens. As expressed by an attendee at the recent EBO workshop: "Helmut Sonnenfeldt once commented that the military thinks in terms of campaigns and plans while the political decision-makers think in terms of options. To do EBO, we need a collaborative process that includes the political decision-makers. That means that our lexicon must be more than military and probably needs to be couched in their terms and not just ours." (JFCOM Workshop 2002, 18)

EBO Linking

Thinking EBO is closely related with the functional element of linking effects. As described by Batschelet, a key strength of EBO is that it does not focus exclusively on using target destruction to achieve desired effects or outcomes. The concept imposes discipline on operational and strategic commanders and staffs, requiring them to focus on linking effects at one level to the achievement of objectives at the next, negating the tendency to concentrate on tactical level actions. (Batschelet 2002, 14)

An effects-based approach must start with a clear understanding and articulation of what national or strategic effects are desired. The development of a campaign that rests on effects-based operations must begin with development of a realistic set of strategic goals that could lead to an understood political outcome (Murray 2002, 3). Policymakers must have a coherent vision of the strategic outcome towards which the employment of military force must aim, so that planners may think through the potential effects their military actions might have and ensure they are appropriate to the strategic goals.

JFCOM believes that the ability to link effects will require a dedicated effort. No matter how impressive the conduct of EBO might be at the tactical or operational level, there is no guarantee that linkages will exist to the operational and strategic levels unless there is a coherent effort to develop those linkages. The actual planning of an effects-based campaign demands an intellectual effort to think through the potential effects of policy decisions (JFCOM 2002, 8). The analysis and explicit linking of strategic objectives and desired outcomes to possible tactical actions are crucial in the development of courses of action and the achievement of objectives.

Linking also has application in the manner we think about the adversary. EBO involve the application of diplomatic, information, military, and economic (DIME) actions to affect the critical nodes and linkages of an adversary's political, military, economic, social, infrastructure, and information systems and networks (Miller 2002, 2). An alternative way of looking at the importance of linking is to look at examples where there is no direction to establish links. A joint force commander who remains uncertain about the desired outcome of US victory hours before surrender negotiations, with little

guidance from political leadership, is not executing the military element of a national level EBO (Linde et al. 2001, 37).

EBO Integration

Integration is the evolutionary progression from the traditional to the holistic. This will not be discussed in any detail, as the importance of incorporating all the elements of national power is highlighted throughout this paper. What is worthy of emphasis is that EBO offer a concept that supports the holistic integration of the elements of national power. As summarized by the Institute for Defence Joint Advanced Warfighting Program (ISA/JAWP), EBO offer a better integration of all elements of national power, because they emphasize:

> 1. The linking of all actions (diplomatic, economic, military and information) to operational and strategic outcomes;
> 2. Planning, analyzing and assessing the implications of actions and operations in terms of their effects on the intended adversary;
> 3. Analyzing desired as well as undesired effects;
> 4. Understanding the implications and consequences of effects over time; and
> 5. Adapting plans and actions continuously to the reality of the contingency or conflict (ISA/JAWP briefing).

EBO Adaptation

One other crucial component to the EBO concept is a willingness to adapt to the actual conditions of war. The essence of EBO is assessing and adapting operations to suit actual conditions before those conditions dramatically change (Murray 2001, 1). This could be otherwise stated as reinforcing a fundamental shift from “rules-based” or “faith-based” operations. EBO are characterized by early recognition combined with the agility to adapt to unexpected events, and an ability to reduce catastrophic surprise or miscalculation.

A key to EBO is the ability to adapt to the mind-set where conditions are different from prewar assumptions and rules and to make appropriate changes in plans and actions. One of the crucial components in military effectiveness is the willingness, after the initial clash of arms, to examine the actual conditions of war and alter prewar preconceptions and assumptions in the face of tactical and operational realities (Murray 2001, 4). EBO also enable a plan to adapt more readily to changing circumstances than traditional operations because one is dealing with massaging effects, not forces, to achieve the end state.

Murray's research highlights that, unfortunately, military commanders and their organizations have often persisted in basing their operations on prewar assumptions and rules in spite of the realities of the battlefield confronting them. As a result, assumption- and rule-based approaches have often mutated into faith-based operations with a terrible cost to those on the sharp end (Murray 2001, 7). This is not always the case, as historically successful commanders have always transcended faith-based operations by understanding the enemy and his intentions through a process of analyzing, assessing, and adapting their force, and executing based upon effects and reality rather than hope and belief (Cheek 2002, 13). The ability to cope with changing circumstances, combat preconceptions concerning terrain and the adversary is essentially the art of EBO adaptation.

The art of adaptation within the EBO process mitigates against the risk of adopting operations that cling to prewar rules and assumptions in the face of evidence. Adaptation builds on the ability of an organization to accept the changing environment and react proactively. The art of adapting also has other new benefits. As suggested by

Linde, EBO send a clear message to potential adversaries: US joint forces are agile, adaptive, and willing to change plans and actions to ensure that they adapt to battlefield conditions and contribute to desired outcomes (Linde et al. 2001, 36).

The Benefits of EBO

The key advantage and broad application benefits of EBO are the creative holistic and agile development of national courses of action, that are rapid, cost effective, and energized to achieve desired objectives. JFCOM research suggests that the conduct of EBO will provide a marked advantage over the adversary. These benefits could be otherwise categorized as being benefits from adopting an EBO approach. Another perspective, that does not seem to have been articulated but which should be established, is the resultant benefits after the execution of an EBO approach.

Resultant benefits will be demonstrated using two fictitious countries, X and Y. Countries X and Y are of contrasting religious, political, and cultural backgrounds. They are keen on regional stability, are ambitious, and want to enjoy regional and global economic superiority. They are equal in comparative military strength (capability) and in technology, with the major difference being that Country X is agriculturally rich and Country Y is rich in resources, in particular oil. Country X adopts an EBO approach, while Country Y employs the traditional military appreciation model.

Country X opens its markets to Western powers, incorporates democratic values in its political process, continues to maximize military and technological advances, and actively pursues an information campaign aimed at Western audiences. Country Y does none of these; instead it conducts minimal engagement within the region, believing that

its stronghold on the export of key power resources will have the dominant effect on the region.

After employing an effects-based approach for five years, Country X establishes regional dominance over Country Y because of the achievement of superior, secondary and cascading effects. Country X's synergy energized a single voice within the region in applying its national powers. This single voice created the primary effect of consistent rapid and cost effective results, and the secondary effect of economic interests with key state and non-state actors were generated as a result of such results. Finally Country X's perceived efficiency generated the cascading effect of international respect and trust for future investment.

The challenges of an effects-based approach is to move beyond the investigation of what actions will bring about an objective or desired result and consider the full range of potential results of actions. EBO provide an approach with the flexibility to consider all of the potential consequences of actions. It is necessary to look at each action and consider why that action should be taken, what can be accomplished by taking the action, why the action should produce a desired effect, and why the action should produce other effects or results.

EBO and the US Services and the Joint Force

From the onset, the US joint or single service communities will be unable to adopt EBO without managing change. Failure to manage change will create inconsistencies in any joint understanding of EBO and foster a perspective that EBO is just another military buzzword. The evolutionary aspects of EBO (thinking, linking, adapting, and integrating) will require a change of mind-set within the respective separate services and joint

communities. This change of mind-set includes breaching tribal service and agency barriers, complete integration and acceptance by each service and agency, and the disassociation with traditional conservative cognitive styles to the adoption and indeed promotion of creative, agile, and holistic planning media.

EBO Are Premised on the Establishment of Jointness

The successful employment of EBO is predicated on a holistic approach across all elements of national power. Within the military element, this demands a joint focus across all components of a defense force. EBO will not be totally successful unless all services are involved working toward a common, clearly defined end state, utilizing all the capabilities available. This includes those components of diplomatic, economic, and information elements of national power over which the joint defense community has influence.

Disparity, however, exists within the joint community in any understanding or acceptance of EBO. This is reflected in comments generated from selected participants from the US joint community at the recent JFCOM EBO Workshop. One question which demonstrates this insight and which was asked at the workshop was 'How should EBO be institutionalized in the Department of Defense?' Responses to this question included:

> 1. The concept in its current state is sufficiently developed to begin to develop the DOTLMPF[4] recommendations. Some of the solutions may need to be developed later after more experience with the concepts in the field. We don't need to wait any longer to begin to employee the effects-based approach into joint and Service doctrine, training and leadership. This alone will take time. In fact if we do not take this action, the JFCs and Services will be doing EBO without a good foundation.
> 2. We all have attempted to consider effects in all of our actions. The Army understands Commander's Intent. Why? Because we think of the battlespace in terms of people, chaos, decentralized execution, flexibility,

> thinking, adaptive. Commander's intent captures effects thinking for the Army (not a position, just a thought) so let the Army explore commander's intent.
>
> 3. EBO is different for each of the services-- but is agreed upon in their terms. The expertise and cultures of the services should not be pounded into conformity for simple agreement of terms. Allow the services cultures and expertise translate EBO into their terms, but allows them to focus on the purpose as primary instead of the task.
>
> 4. Do not agree with participant xxxx (comments listed as para 1.)- there is no agreement throughout the community as to what EBO is and therefore any DOTMLPF[2] recommendations merely represent one (or a small number) of peoples recommendations.
>
> 5. The USAF is beyond institutionalizing it. They feel they have been doing it for years and it is not a concept. It pervades their Existing doctrine, at all levels, now. Capstone doctrine is being developed to codify the overarching principles and guidance. (JFCOM Workshop 2002, 37)

One of the most interesting and pessimistic views to emerge from the workshop was:

> It's already too late to control the process of how EBO will be implemented. There is already a powerful process at work shaping this animal. There is a huge bag of money on the table with EBO written on it and each service will try to define EBO in such a way as to grab the biggest share. There will eventually be three different versions of EBO. When the services try to hash this out in joint doctrine the following will happen. No service will be willing to come to the other's point of view. A new compromise definition of 'joint EBO' will be created that will be so broad confusing and ambiguous that each service can interpret it the way they want to. We will take a concept that could be extraordinarily useful for imposing our will on our opponents and we will instead turn it into a cash cow for the services to detriment of national defense. Talk about undesired effects!" (JFCOM Workshop 2002, 39)

These comments suggest a certain amount of opposition and inability for the joint community to understand EBO holistically and then relate this concept to the tribal domains of each service. The truth, as alluded to above, is that, despite what military ideologists may think, one may have to accept that true jointness does not yet completely exist within the US military. This must be rectified if the US joint community is to fully embrace EBO.

Change of Culture

Institutionalizing EBO within the US services will not occur unless there is a change in culture. If EBO are to become effective, this concept must be embraced and cultivated as a joint and interagency concept without service centric or agency centric opinions or ambitions. For example, authors such as Batschelet believe that implementing EBO in the US Army should prove relatively easy, but the transition to EBO in the joint community is likely to be problematic and will require a culture change within all three services (Batschelet 2002, 14). The cultural aspect expressed by Batschelet is correct, however, the belief that implementing EBO within the US Army will be easy creates an element of confusion and one worth challenging. If the Army is to embrace the joint ethos, then implementing any transition should be of equal challenge to all services.

Batschelet should be reminded that EBO are a holistic approach, with the evolutionary aspects of thinking, linking, integrating, and adapting on a broad scale. The US Army may be able to think and adapt in EBO terms, but unable to effectively link and integrate without dedicated joint and interagency collaboration. Therefore, the only way EBO can be mastered in all their forms is in the interagency and joint environments. To achieve this, a suitable military culture must be established where service views are focused towards this sole joint approach. Once established this culture must permeate through each service.

Culture factors also include acknowledgement by the military that both lethal and nonlethal effects can be used to achieve the desired national endstate. The military should also acknowledge that once they have been assigned the lead on a problem that the military arm can continue to employ the other elements of national power to assist in the

achievement of assigned objectives. Too often the military believes that once the military has been handed an issue, only the military element owned by the force can be used. This is not the case; an EBO approach will highlight to the commander and staff that economic, informational, and diplomatic assets can support the military campaign. Alternatively the military arm may be called to provide support to other agency lead operations.

Obviously, for the military to engage agencies implies that the development of any joint or military culture must also permeate and cross- pollinate with the interagency world. As argued by JFCOM, military staffs integrated with nonmilitary representation will be required to apply an effects-based mind-set as they move through the planning, executing, assessment, and adaptation cycle of EBO. This will require new doctrine, tactics, techniques, and procedures, organizational changes, and training, not in only software and hardware utilization but also, more importantly, in inculcation of an effects-based mind-set (JFCOM 2002, 1).

Leadership

Leadership is a requisite to establishing the desired EBO culture and indeed any desired execution of EBO. Leaders need to see, hear, question, clarify, reinforce, connect, and direct in effects-based terms. If EBO can make a difference over an adversary, then military leaders must have a clear understanding of the outcome towards which their military actions are to aim. If they do not, they cannot design an effects-based campaign. EBO must start with key leaders if they are to permeate through not just US services but also US agency environments. This perspective was reflected in one of many comments from the JFCOM EBO workshop:

> It seems to me that the first place to inculcate this "new" way of doing business is with senior leadership. Conducting EBO requires a culture change from senior leadership. If it becomes evident to subordinate commanders that the senior leadership is thinking effects based, and he/she feels that effects based thinking/ops is good and important then it will become important to subordinate commanders. EBO then starts trickling down because everybody knows the boss thinks this is important and everybody will think it is important. You have to start with senior leadership--the higher the better. (JFCOM Workshop 2002, 40)

Leadership must reflect every aspect of the EBO model, in particular, the need for interagency involvement. For example, it did not appear that any of the recent JFCOM trials and workshops involved participants outside the defense community. If true, then it would be naive to believe that outcomes produced to support an effects-based approach are going to be accepted by important agency players, especially if they were excluded from the concept design.

The use of commander's intent is one aspect of EBO that is not new. An understanding of the intent-based model is a good platform for leadership to implement EBO. EBO, as with any approach to planning, executing, and assessing military operations, start with commander's intent (McCrabb 2002, 3). EBO build on the current intent-centric style of leadership, which promotes initiative on the battlefield, allows a subordinate to exploit opportunities and harness energy towards the effects desired. The advantage EBO offer to the intent-centric style leadership is the enhanced ability to disengage from undesired or actions, which are assessed at creating unwanted effects.

Institutionalizing EBO

Training and education will be required to institutionalize an effects-based mind-set. Experiments to date have repeatedly identified the propensity for individuals and staff elements to regress to either assumption-based operations with the familiar fight-centric or force-on-force mind-set. This results in a fixation with statistics (quantity of

targets destroyed, numbers of casualties) instead of a disciplined approach focused firmly on the desired end state.

Institutionalizing EBO will require modification to US joint and service training establishments. Comments from the EBO workshop reflecting this include: “Educate people on what EBO is. Get away from prioritized target lists that are ‘serviced’ without thought as to why. And not just ‘Because it will produce xx effect.’ How will it produce that effect?” (JFCOM Workshop 2002, 15). If the US joint community is going to adopt EBO, then action must be taken to reflect this in training institutions and in joint doctrine.

Joint Forces and the Agencies

The establishment of formalized interagency involvement with joint force structures has the potential to be of high value to the joint force commander. One suggestion from Williams is that joint force commanders first need a theater-level interagency coordination element; and second, they must form an Effects Assessment Board to ensure the campaign remains oriented on generating the effects necessary to attain the operational and strategic objectives (Williams 2002, 18). This proposal implies a change to training and joint doctrine, and would require active support from the agencies. This can be adapted to harness both joint and agency aspects in campaign planning, possibly replacing the existing Joint Force Coordination Targeting Board by a Joint Interagency Effects Board.

Interagency involvement within US combatant commands is not new. As Schmitt points out in his discussions of current military–agency engagements, several regional commanders have asked for civilian agents to be assigned to their commands to improve

interagency coordination (Schmitt 2001, 1). This is a positive step towards the future development of EBO relations between the military and nonmilitary agencies.

The Advantages of EBO to the US Joint Force

The advantages EBO offer to the joint community outweigh any challenges the joint community will face in adopting and institutionalizing EBO. One advantage that stands out is the explicit planning and linking of strategic objectives and desired outcomes to tactical actions. This is not to be confused with restricting a subordinate commander's initiative or authority, nor does it imply a shift towards any form of micromanagement. On the contrary, EBO help focus the commander's intent and empower subordinate commanders by providing them with an understanding of the end state and the means to achieve it.

The strategy-to-task linkage is the glue that holds together a comprehensive plan that executes tactical actions at the right place, at the right time, by the right force, and for the right reason (JFCOM 2002, 20). This is reinforced in the ACC white paper: "EBO require military commanders and planners to explicitly and comprehensively link, to the greatest extent possible, strategic and operational objectives to each tactical action" (ACC White Paper 2002, 11). These factors and advantages should be kept in context as the employment of EBO within the US Army is next examined.

The US Army and EBO

As stated earlier, Batschelet commented that implementing EBO in the US Army should prove relatively easy. This perception is likely due to the close connection of EBO with the military decision making process (MDMP), the US Army process of analyzing an adversary through the intelligence preparation of the battlefield, a "center of gravity

construct," and the resemblance previously mentioned to intent centric style operations. In many ways younger generation officers conversant with the MDMP, full spectrum operations, and creative thinking will be able adopt an effects-based approach without difficulty. The challenge will likely remain in the higher Army circles, where leaders and staffs who were institutionalized on pre-staff military appreciation processes. Therefore, institutionalizing EBO within the US Army must incorporate some form of continuum training for personnel with limited experience with the concepts of MDMP.

US Army Perspective of EBO

The belief that EBO will offer the greatest challenge to the senior Army leadership permeates throughout the US Army. How US Army leaders approach the development of this concept will determine, to a great extent, how difficult it will be to adopt EBO within the Army and how fully the benefits of EBO will be appreciated. To combat this challenge, US Army leaders need to conduct an analysis of the EBO concept and gain an accurate insight of the benefits this concept offers.

Any new approach to war fighting that enhances the Army's understanding of an adversary, enhances decision superiority, and has the potential to take directions which reduce the need to place soldiers in harm's way is a process worth close investigation. This should be the approach taken by the US Army; however, acceptance of the EBO concept is restricted by both caution and some apprehension. US Army involvement in the EBO process could also mitigate any further possible Air Force dominance. While EBO is not reflected directly in any current US Army doctrine, action is being initiated to research the EBO concept as part of the US Army transformation process. Mr. Mike Burke, a retired US Army lieutenant colonel in the Combined Arms Doctrine Directorate

at Fort Leavenworth, offers one such concern. He stressed that the one area with which the Army was extremely concerned was that EBO could evolve into an air task order (ATO) approach for conducting operations (Interview with Mr. Mike Burke, Combined Arms Doctrine Directorate, Fort Leavenworth, Kansas, 25 February 2003).

Interestingly, apprehension within US Army circles also exists with respect to firepower. As explained by Batschelet, many perceive the Army position on EBO as limited to discussions of creating effects solely with fires. He goes on to clarify that the concept of EBO differs in that it places more emphasis on understanding the enemy and determining the linkages between cause and effect. (Batschelet 2002, 12)

EBO and the Implications for the US Army

Accepting and institutionalizing the components of thinking, linking, adapting, and integrating EBO are essentially the key implications for the US Army. For the purposes of this paper, adapting will not be addressed, as this is more of a functionality of the EBO process than any implication for the Army.

Adopting an EBO approach and thinking in EBO terms will mean some investment into the Army education process. This will need to be twofold: firstly, establishing an understanding of what EBO is, followed by an appreciation of why EBO have advantages over a traditional military approach. EBO will require the Army to develop leaders who are capable of conceptual agile thinking. For the US Army to embrace EBO it must start at the basic officer leadership course (Batcshelet 2002, 17), and transcend throughout all forms of officer development education. This means a change from the traditional military perspective of the adversary and the environment,

which, in some respects, can be a very narrow view of the battlespace, to a broader outlook on all aspects that can bring about a change in the adversary's behavior.

To establish linking within the US Army will require a review of US Army FM 3-0, *Operations*, in particular, full spectrum operations. Doctrine will need to reflect the required linking aspects of a successful EBO campaign. More so than current US Army doctrine, EBO require commanders and staffs to link tactical actions to operational objectives and desired strategic effects (Batschelet 2002, 13). The overall intent of revised doctrine should be to aim towards synchronization of military, government, and nongovernment capabilities into a cohesive and effective force that can bring to bear the full range of national capabilities against an adversary. Doctrine may also need to look into the next aspect of integration with other agencies.

The ability to communicate and transfer information varies considerably across the wide range of organizations that are potential EBO contributors to the US Army. In many cases interagency relationships do not exist, and agencies may even hold opposing viewpoints to their Army colleagues. One should be cognizant that the term "integrating" refers not just to the physical aspect but also to the mind-set of interagency involvement. Conduits and liaison between the military and the agencies must be established among such organizations.

In terms of approaching integration, one suggestion is that this could be approached in a similar way to the aspects of the combined arms team. One way of looking at this is to transform the development of habitual relationships beyond the traditional combined arms climate. JFCOM suggests that the answer to the interagency problem lay in forming longer-range habitual relationships that eliminate any surprise or

reluctance when information is requested. Without the establishment of relationships, subject matter expertise will be harder to find and utilize (JFCOM 2002, 15).

Adopting EBO for Australia

As highlighted in chapter 3, there are a number of major differences that exist between the Australian and US political and military structures. The application of national power is also different between each country. This disparity, however, does not impede an application of an effects-based approach for Australia. On the contrary, Australia's structure is more likely to favor EBO due to Australia's smaller and flatter organizational structure, its centralized military education system, and the pre-existence of an effects-based process in joint Australian doctrine.

EBO and ADF (Current and Emerging) Doctrine

> One of the characteristics of planning at the strategic level is the need for an effective political/military interface to ensure coordination of the various instruments of national power in pursuit of national objectives. While independent military action may be the chosen option, it is more likely that a combination of the elements of national power will be utilized in any given situation. Hence there is a need for wide consultation at this level to ensure a coordinated approach by all interested government agencies as well as concerned commercial organizations. (ADFP 9 2000, 3-1)

Some elements of EBO, in particular the integration of national power, exist in current ADF doctrine. Australian doctrinal government and ADF strategic level procedures suggest that an effects-based organizational culture may also already exist at the strategic level within the ADF.

Doctrinally, the Australian government provides direction and guidance to the Chief of the Australian Defence Force (CDF),[5] which includes a statement of the required national end state and a definition of national interests that require a military response (ADFP 9 2000, 3-2). Strategic planning (including crisis action planning) of operations

within the ADF is then supported by an Interdepartmental Committee, which includes representatives from the Prime Minister (PM) and Cabinet (information) and the Department of Foreign Affairs and Trade (diplomatic and economic). Doctrinally speaking, the start to linking (establishing the desired end state and interests by the PM and CDF) and integrating (interagency play by defence and DFAT) exists at the strategic level within Australia.

The absence of any effects-driven doctrine at either the operational or tactical level in Australia suggests that, to date, an EBO approach (while not called EBO) has been limited within Australia to the strategic level. Emerging Australian publications, such as ADF Joint Vision 2020 (Australian Department of Defence 2002a) and the Future Warfighting Concept Paper (Australian Department of Defence 2002b), reinforce the development of an EBO concept. However this is again focused at the strategic level.

Within the Australian Army, reference is made in the revised "Fundamentals of Land Warfare" (LWD 1) to supporting the joint war-fighting concept and generating "joint effects," which are the outcomes resulting from the application of each of the service's fighting power in the battlespace. This is reflected in the following statement:

> While Australia is responsible for the security of almost 10 per cent of the earth's surface, the Australian nation can only devote a relatively small proportion of its human and material resources to defence. As a relatively small force, the ADF must be versatile, adaptable and agile so that it can conduct a broad range of missions. Achieving these characteristics relies on generating joint effects… Land forces need to establish a position of advantage with respect to an adversary, from which force can be threatened or applied, to enable decisive operations. To establish such a position effectively, the ADF must achieve and maintain a joint war-fighting capability, and the Army must become accustomed to conducting operations across environmental boundaries. (LWD 1, 2002, 58)

While the term "joint effects" is not EBO, it can be used as a basis to generate effects-based thinking. What is interesting in LWD 1 is the guidance given in relation to

gaining an advantage over the adversary. EBO may provide the Australian Army with a concept to achieve this advantage.

EBO and the Australian Army

In most cases the implications identified in this thesis for the US military have equal application for the Australian Army. In the interest of brevity, these equal applications are summarized as being premised on the establishment of "jointness;" a required change in both mind-set and culture; a clear understanding and articulation by leaders; and the need for institutionalization. Some applications do need further explanation as contrasts in the modus operandi of each organization exist. This will be achieved by reinforcing two commonalties: that EBO in their holistic sense must be 'joint' in order for them to have an application at the service level; and applications for the Australian Army involve the EBO trilogy of linking, thinking, and integrating.

If EBO are a holistic approach and require a joint mind-set, then institutionalizing EBO should follow a similar path. This means that boundaries, as suggested by LWD 1, should be crossed by the Australian Army to allow interaction below the strategic level with other government agencies. This will be difficult for the Army to pursue unless interest is first generated within the complete government structure. The Australian Army must, therefore, not approach EBO in an isolated sense. On the contrary, the Australian Army needs to embrace the essence of EBO as a combined joint and government concept in which Army has an active role. This role and application are again described by the EBO trilogy of thinking, linking, and integrating.

EBO Thinking and Linking and the Australian Army

EBO thinking and linking within the Australian Army require an evolutionary progression of the Australian Army Military Appreciation Process (MAP, modeled on the US MDMP). Such a step requires the parallel evolution of the Australian Joint MAP (same process, however at the joint level). Such development can follow the similar path as established earlier in this chapter for the US MDMP.

Commanders and staffs must think in an effects-based fashion if they are to operate in an effects-based fashion. A way to promote such thinking is command guidance and the use of commander's intent. One suggestion offered for the Australian Army is to revise the current commander's intent process to successfully achieve linking of tactical action to strategic ends. It is no longer sufficient to tolerate a subordinate's cursory understanding of the commander's intent two levels up. Leaders at every level of the chain of command need a clear understanding of Australian national security and campaign objectives and, at least, a basic understanding of those actions necessary to create effects that cumulatively result in the desired end state.

For the Australian Army institutionalizing an evolutionary development of the MAP will be the greatest challenge associated with introducing the EBO concept. Soldiers will however, not automatically embrace such challenges. This is because the section commander through to company commander of an infantry battalion will suffer initial difficulty accepting why the strategic end-state plays such an important role in execution of their small tactical mission or task. To combat this perspective, the importance of linking must be institutionalized at every level of training within the Army. Institutionalization must also includes the conduct of continuum training for senior

noncommissioned officers, warrant officers, and field grade officers who would otherwise have completed their respective levels of developmental training. As stated by Barksdale, EBO can simply be thought of as the latest name applied to “optimum linking of means to ends for the achievement of ones objectives” (Barksdale 2002, 6). The section through to company commander will need to understand this relationship in order to conduct EBO.

Another approach, that runs parallel with the US Army and also must be institutionalized, is to approach the EBO concept from a traditional objective-based approach. The key need in taking this approach would be for the Army to establish a disciplined understanding of what constitutes the creation of “causal links” within the operational theater. This is an evolutionary step from current planning, where cyclic checks would need to be applied to tactical actions before and after execution.
This could also be presented as a new addition to the MAP mission analysis. For example, tasks (currently listed as specified, implied, or essential) may be reworded as direct, indirect, essential, and undesired, with a matrix of relations drawn to identify causal linkages. Again the Australian Army will only be able to embrace such an approach if this is exposed and institutionalized at every training level.

While the change associated with EBO may initially be difficult to accept, the art of institutionalizing EBO thinking and linking within the Australian Army will not. This is because at the Australian strategic level a form of EBO language, doctrine, and, indeed, an understanding of the EBO concept already exist. If EBO language and an approach already exist at the level of the CDF, it will eventually trickle through all levels of the leadership chain.

EBO Integration and the Australian Army

The last aspect of EBO highlighted in this thesis for the Australian Army is that of integration. Integration at the lower tactical levels, however, may only actually be in the nonphysical sense. This is because it is unlikely that, at the lower tactical level (company level and below), physical integration with government agencies will occur. Lower tactical commanders will, however, need an understanding of the integration process in order to be able to engage in EBO, link their actions with national objectives, and synergistically nest their effort as part of a wider EBO campaign.

The battalion staff and field grade officer level is somewhat different. The ability to relate, communicate, and integrate with elements of Australian and in some cases foreign and other nonstate actors will become increasingly demanding in an EBO environment. The Australian Army must educate both soldiers and officers on the aspects of EBO integration and establish environments where such experience can be gained.

One advantage Australia has, as a small military, is the existence of single entry and single development education stages within the organization.[6] These single entry and stage development areas simplify the implementation and institutionalization of EBO into the Australian Army. For example, lower levels of both junior officers and junior noncommissioned officers could have education exposure to the elements of national power (DIME). Staff grade officers and senior noncommissioned officers should then be provided with practical experiences with interagency involvement during respective junior staff officer and regimental stage training. Such an approach is obviously linked to an agreed participation by Australian agencies. This implies that if Army leadership or,

indeed, the strategic commanders seek EBO, then action will be taken to incorporate and institutionalize integration as part of the military development process.

The Benefits of EBO for the Australian Army

Implementing an effects-based approach within the Australian Army can be achieved with minimal disruption. Adopting such an approach would outweigh any setbacks in disruption. That said, there are some key factors to this process, which include active and open-minded leadership, EBO education, doctrine refinement, and the development of an effects-based culture, which includes the ability to integrate with other relevant agencies.

Adopting the concept of EBO will not demand a complete re-analysis of the current modus operandi within the Australian Army. The basic components of EBO already exist within the military through the MAP, less the potential embedding of government agencies (e.g., DFAT) within the various HQ planning levels. What needs to be undertaken is an education process through all levels to ensure it is understood (junior noncommissioned officer training, e.g., the Australian Subject One Corporal Course and above). Understanding EBO, accompanied by open engagement by the complete ADF and government agencies, will be key to implementing EBO. The Australian Army should adopt an effects-based approach because:

1. Conceptually, EBO doctrine already exists at the strategic level within the ADF.

2. Future joint war-fighting concepts (which the Australian Army supports) highlight the importance of EBO.

3. The concept enhances the ability to understand an adversary.

4. The process is likely to be easy to institutionalize within the Australian Army.

5. Adopting EBO has the ability to further enhance interoperability with the US military. Chapter 1 contended that interoperability and the concurrent development of systems that enhance the relationship with the US are key elements of current Australian defense strategy.

6. The products of EBO are enhanced, rapid, holistic and agile solutions, which are cost efficient, reduce the exposure of Australian soldiers, and harness the effects of national instruments of power to achieve Australian objectives.

7. Every action taken at the lowest tactical level is linked to the achievement of Australian national interests.

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[1] RDO is also a concept being reserached by US JFCOM. The intent of this concept is that RDO will integrate knowledge, command and control, and effects-based operations to achieve the desiredpolitical/militray effect (Echevarria, 2001).

[2] John Boyd was a US Air Force Fighter pilot who developed a model of decision making based on his experiences in the Korean War. This model, commonly referred to as Boyd's OODA Loop, comprised a continuous cycle of observation, orientation, decision, and action. In this cycle, the decision maker (initially a fighter pilot) would try to reduce the time it took him to go through the cycle. The speed of the decision cycle was relative, but ultimately, the pilot who could reduce his cycle enough to be "inside"' his adversary's cycle would eventually win. The BOYD OODA Loop process exists in both Australian and US military planning and decisions making procedure's today.

[3] The term action is linked closely with the previous defintion of effects offered earlier in this chapter. This explanation is designed solely to enhance the understanding of the EBO cycle. This does not supercede the defnitions offered early in this chapter.

[4] DOTLMPF (doctrine, training, leader development, organization, material, personnel and facilities) is the US military term for researching the introduction of new concepts, technology equipment etc for the US military. In many ways this is a similar to the Australian POSTED approach, which stands for Personnel, Organisation, Support, Training, Education and Doctrine.

[5] In essence, the Chief of the Australian Defence Force performs a role similar to the US Chairman of Joint Chiefs of Staff. He is the sole four star officer within the ADF and is primarily responsible for commanding the ADF.

[6] Using the Army officer corps as an example, all Australian officers are educated at the Royal military college of Australia before being commissioned as lieutenants. Developmental training occurs centrally at the rank of Captain (junior staff and tactics training), junior major (intermediate operations training) and then joint (combined joint command and general staff college). The largest difference between the Australian and US systems is that the US has multiple entry points (Westpoint, ROTC, OCS)

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Despite preconceptions, EBO are not Air-Force-centric, nor are they a new revelation. EBO are an evolutionary refinement and broadening of current US and Australian doctrine to a full dimensional, integrated, and holistic approach, an evolution that provides a powerful unifying and holistic conceptual methodology that commanders and staffs can apply to all operations across the spectrum of conflict. EBO tout a fundamental shift in the manner national security is viewed and conducted. If implemented in its holistic manner, it will harness the full potential of all instruments of national power and bring decision-making superiority to the conduct of national security. EBO also add the potential advantages of cost savings, in particular, the ability to reduce the preponderance of soldiers in harm's way and the ability to arrive at effective rapid solutions.

EBO take the doctrinal objectives-based approach one step further, allowing for an examination of the causal linkages and effects through which actions lead to objectives. It is the relevance of the causal linkages with respect to the EBO assessment process that determines whether an action taken will achieve the desired effect. One of the changes associated with EBO is a shift from targets related primarily to an adversary's means to those concerning his will or behavior and his associated decision processes. EBO envision a more comprehensive understanding of the adversary, the determination of desired effects, and the application of the full spectrum of military and nonmilitary capabilities.

The concept of EBO promises a marked advantage to any military (Australia, US or other) that is astute, adaptive and capable enough to embrace its holistic nature. As suggested in this thesis, the definition of EBO that incorporates key aspects of available research and is tailored to Australia is:

> EBO is the synergistic employment of all instruments of national power, as interdependent and supporting systems to achieve desired national policy. EBO are continuous process, applied from the strategic to the tactical level, to promote a whole of government strategy against an adversary that achieves a common end state with the greatest speed and least cost.

While EBO present many advantages, implementing EBO within the US or Australian militaries will not occur without cost. The concept is premised on the establishment of 'jointness' and the ability to engage in a mutually supporting relationship with governmental agencies. If it is to become successful, senior leadership at every level, ranging from military through to government, must take ownership and embrace this concept.

Leaders must have a clear understanding of what end state is desired. They must be able to articulate their intent in terms of effects and gain an appreciation of the EBO aspects of thinking, linking, and integrating. This appreciation must then also permeate throughout their organizations and become institutionalized.

The adoption of EBO means a change of culture and mind-set. The military will need to acknowledge that both lethal and nonlethal effects can be used to achieve a desired national endstate. The military arm must equally acknowledge that, once given the lead on an objective, other relevant agencies can support the achievement of that objective. Too often the military assumes that once allocated an objective or mission, only the military element is available for use. This is not the case; an EBO approach

promotes holistic solutions where the commander and staff have the potential to harness support from economic, informational, and diplomatic assets to support the military campaign. Equally, military assets might also be viewed in a similar manner by other national instruments of power when they have the lead on a national objective.

EBO are a value-adding concept that should be adopted by the Australian Army. Australian Army force developers and other services must accept that the true context of EBO cannot be adopted by a service in isolation. EBO are holistic and, therefore, require integrated approaches in their very design, research, and institutionalization.

Initially this concept may be difficult for soldiers at the lower tactical levels to comprehend. Once exposed to EBO, this will change. Soldiers will gain an insight to EBO thinking, linking, and integrating, which will ultimately provide higher resolution to their purpose. This approach will also empower junior tactical commanders with the ability to make decisions based on the premise that their very actions or lack of action are linked directly to the achievement of a national objective.

The Australian Army should formally adopt the concept of EBO, because the products of an effects-based approach are enhanced, rapid, holistic, and agile solutions that are cost efficient and reduce the exposure of Australian soldiers. The ability to harness the effects of government to achieve Australian end-states are outcomes worth seeking. Despite this, any approach by the Australian Army to adopt EBO must be an initiative that encompasses the complete ADF and includes active interagency involvement.

Recommendations

Evidence suggests that in a strategic sense the ADF has already adopted the concept of EBO. Moreover, Australian troops are currently deployed as part of a US-led coalition in Iraq, where EBO are being executed to some degree. The question of whether the Australian Army should adopt EBO may therefore appear nugatory. This question should now be rephrased to one of 'how will the Australian Army adopt EBO?' While some suggestions have been included as part of this thesis, the question of how EBO should be adopted should be served by recent experiences born from operations in Iraq and research by future papers. With this understanding, it is recommended that:

1. The Australian Army support the adoption of a combined ADF-interagency approach to EBO.

2. In supporting this approach, the Australian Army takes steps to incorporate EBO in all levels of training.

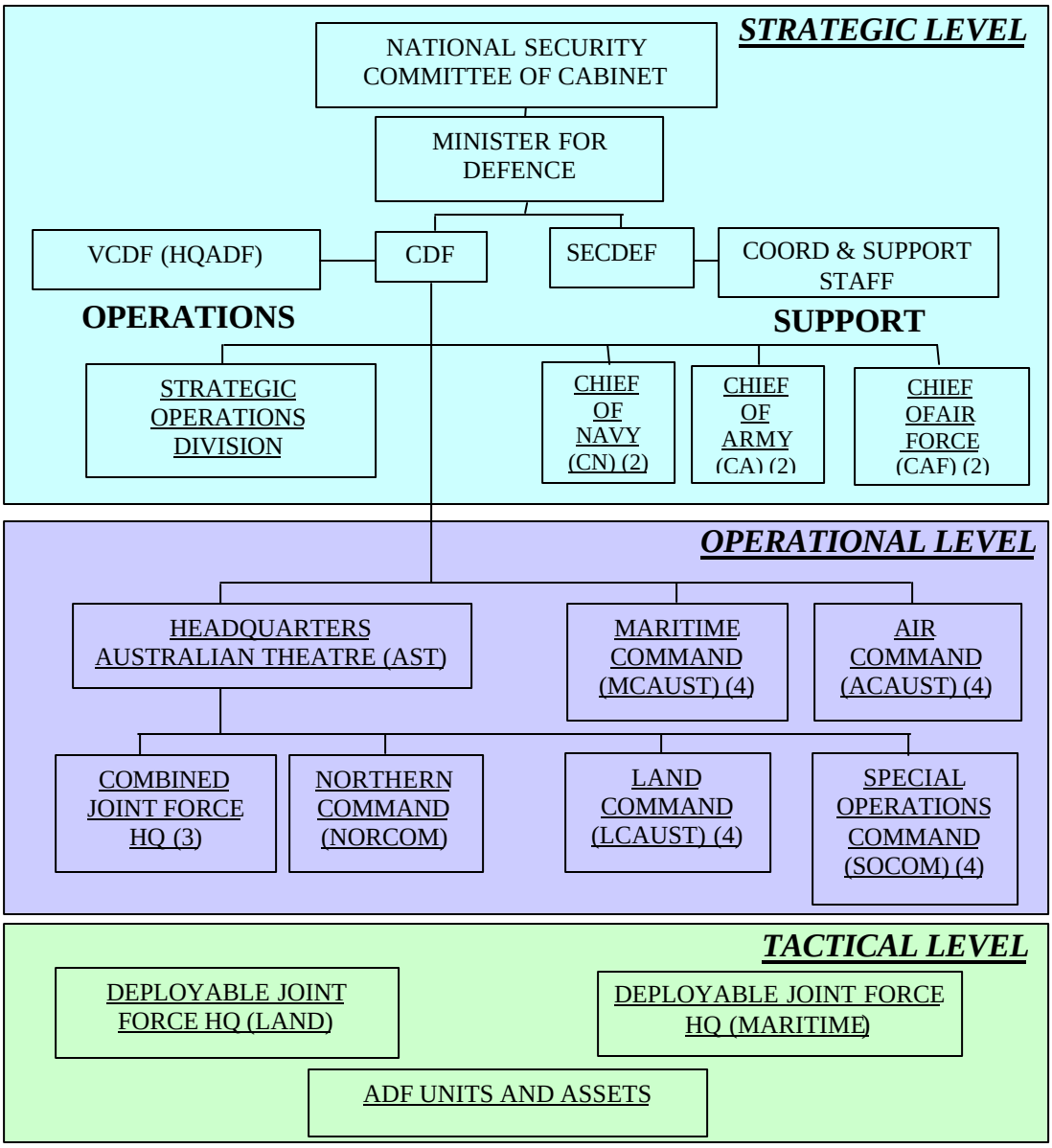
3. Australian Army doctrine, in particular LWD 1, be amended to reflect emerging ADF guidance on EBO.

4. An element of the Army Force Development Group, or an appropriate ADF officer, participate as an observer at future JFCOM workshops or exercises to research and refine the EBO concept.

5. Further research, in particular in methods of implementing EBO and the refinement of this topic, is undertaken by the ADF.

APPENDIX 1

THE AUSTRALIAN DEFENCE FORCE (ADF) ORGANIZATIONAL STRUCTURE



NOTES: 1. This diagram has been updated from the current Australian Doctrine (ADFP 1 1999, 69) to include current ADF terminology and procedures.
2. Service Chiefs provide the advice to CDF, at the strategic level, for planning and conduct of operations.
3. When required.
4. COMD MCAUST, LCAUST, ACAUST or SOCOM can be appointed as COMD CJF.

REFERENCE LIST

ADFP1. 2000. *See* Australian Department of Defence. 2000a.

ADFP2. 2000. *See* Australian Department of Defence. 2000b.

ADFP6. 2000. *See* Australian Department of Defence. 2000c.

ADFP9. 2000. *See* Australian Department of Defence. 2000d.

Australian Army. 1999. Land Warfare Doctrine 1 (LWD 1). *The Fundamentals of Land Warfare.* Sydney, Australia: Doctrine Wing, Combined Arms Training and Development Centre.

Australian Department of Defence. 2000a. *Australian Defence Force Publication-1 (ADFP 1).* Canberra, Australia: Australian Government Publishing Service.

_____ . 2000b. *Australian Defence Force Publication-2 (ADFP 2).* Canberra, Australia: Australian Government Publishing Service.

_____ . 2000c. *Australian Defence Force Publication-4 (ADFP 4).* Canberra, Australia: Australian Government Publishing Service.

_____ . 2000d. *Australian Defence Force Publication-6 (ADFP 6).* Canberra, Australia: Australian Government Publishing Service.

_____ . 2000e. *Australian Defence Force Publication-9 (ADFP9).* Canberra, Australia: Australian Government Publishing Service.

_____ . 2000f. *Defence 2000.* Canberra, Australia: Australian Government Publishing Service.

_____ . 2002a. *Force 2020.* Canberra, Australia: National Capital printing.

_____ . 2002b. *Joint Warfighting Concept* (Draft version 1.3). Puckapunyal, Australia: Force Development Group.

Australian Department of Foreign Affairs and Trade. 1997. *In the National Interest.* Canberra, Australia: Government Publishing Service.

Barksdale, Carl A. 2002. *Network Centric Operations – Effects Based Operations Marriage: Can it enable the prediction of "higher order" effects on the will of the adversary.* Newport, RI: Naval War College.

Batschelet, Allen W. LTC. 2002. *Effects Based Operations: A New Operational Model.* Strategy Research Project, U.S. Army War College, Carlisle Barracks, PA.

Bingham, Price T. (USAF Retired). 2001. "Transforming Warfare with Effects Based Operations." *Aerospace Power Journal*, spring. Available from www.airpower.maxwell.af.mil/airchronicles/apj/apj01/spr01/spr01.html. Accessed September 16, 2002.

Clausewitz, Carl von. 1993. *On War.* Translated by Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press.

Cheek, Gary H. 2002. *Effects Based Operations, the end of dominant maneuver.* Strategy Research Project, U.S. Army War College, Carlisle Barracks, PA.

Davis, Paul K. 2001, *Effects Based Operations: A Grand Challenge for the Analytical Community.* Santa Monica, CA: RAND.

Deptula, David A. n.d. *Effects-Based Operations: Changes in the Nature of War,* available from http://www.aef.org/pub/psbook.pdf. Accessed September 16, 2002.

Echevarria II, Antulio J. 2001. *Rapid Decisive Operations: An assumption based critique.* Strategic Studies Institute, U.S. War College, Carlisle Barracks PA.

Linde Gwen, Denis J Gleeson, Kathleen McGrath, Adrienne J. Murphy, Williamson Murray, Tom O'Leary, and Joel B Resnick. 2001. *New Perspectives on Effects Based Operations.* Institute for Defence Analysis, IDA document D-2583.

LWD 1. 1999. *See* Australian Army. 1999.

Macquarie Concise, Dictionary. 1988. 2d ed. Sydney, Australia: The Maquarie Library Pty Ltd. New South Wales Australia.

McCrabb, Marris, Buster, Dr. 2002. *Explaining Effects.* Unpublished paper dated 17 Mar 2002. Emailed by Mr Graham Kessler, U.S. JFCOM, 19 September 2002.

McDaniel, William T. 2002. *Effects Based Operations.* Unpublished paper, undated. Emailed by Mr Graham Kessler, U.S. JFCOM, 19 September 2002.

Miller, Jim, Dr. 2002. *Operational Net Assessment: What are the real challenges*, Draft unpublished paper dated August 2002 , Emailed by Mr Graham Kessler, U.S. JFCOM, 19 September 2002.

Murray Williamson. 2001. IDA Paper P-3606. *An Historical Perspective on Effects Based Operations,* IDA Joint Warfighting Program, Alexandria, Virginia.

Rumsfeld, Donald H. 2001. *Quadrennial Defense Review Report.* Washington, DC: US Government Printing Office.

Ryan, Alan. 2002. *Australian Army Cooperation with the land forces of the United States, Problems of the Junior Partner.* Land Warfare Studies Centre, Duntroon, Canberra, Australia.

Schmitt, Eric. 2001. Commanders Say They Want Civilian Agents. *New York Times,* 20 November, 1.

Smith Jr. Edward A. Dr. 2002. *Applying Network Centric Warfare in Peace, Crisis and War.* Department of Defense Command and Control Research Program (CCRP), Washington DC.

U.S. Air Power Research Institute. 2002. *Effects Based Joint Operations*; CADRE, Draft USAF White Paper, Emailed by Mr. Graham Kessler, U.S. JFCOM, 19 September 2002.

US Air Combat Command. 2002. *Effects Based Operations.* White Paper, Washington, D.C: Government Printing Office.

U.S. Department of the Army. 1999. *Objective Force,* White Paper, Government Printing Office, Washington D.C. 1999.

_____ . 20002a. *Effects Based Thinking.* Memorandum to TRADOC (undated). Emailed by Mr. Graham Kessler U.S. JFCOM, 19 September 2002.

_____ . 2002b. FM 3-0, *Operations.* Washington D.C: Government Printing Office,

U.S. Department of Defense. 1998. Joint Publication 3-13:*Joint Doctrine for Information Operations.* Washington D.C: Government Printing Office.

_____ . 2000a. *Joint Publication 1-02.* Washington D.C: Government Printing Office.

_____ . 2000b. *Joint Vision 2020,* Washington D.C: Government Printing Office.

U.S. Institute for Defense Analysis, Joint Advanced Warfighting Program (IDA/JAWP). 2002. Briefing emailed by Mr. Graham Kessler, U.S. JFCOM, 19 September 2002.

U.S. Joint Force Command (JFCOM). 2001. *Concept Framework for Effects Based Operations,* Draft White Paper. J9 Concepts Department.

_____ . 2002. *Conference Notes, JFCOM Workshop on Effects Based Operations,* Held 10-12 September 2002, Emailed by Mr. Graham Kessler, J9 concepts section U.S. JFCOM, 19 September 2002.

Williams Brett T. 2002. *Effects-Based Operations: Theory, Applications and the Role of Air Power.* Strategic Studies Institute, U.S. War College, Carlisle Barracks PA.

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