STRATEGY RESEARCH PROJECT

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EFFECTS-BASED OPERATIONS: THEORY, APPLICATION AND THE ROLE OF AIRPOWER

BY

LIEUTENANT COLONEL BRETT T. WILLIAMS
United States Air Force

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Effects-Based Operations: Theory, Application and the Role of Airpower

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LIEUTENANT COLONEL BRETT T. WILLIAMS
United States Air Force

Professor Leonard Fullenkamp
Project Advisor

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U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

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ABSTRACT

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Critics of effects-based operations think the concept relies on perfect information, advanced technology, and precise air attack; therefore, it is an unachievable, narrowly focused warfighting panacea that ignores the fog and friction of war. This paper argues that effects-based operations is a theory that helps determine how to use the elements of power to attain national security objectives. Effects-based operations does not depend on information dominance, high-end warfare, or even precision strike to make it useful and as a theory, it is applicable across the spectrum of conflict. The paper defines effects-based operations theory and explains how it helps develop and assess strategy within the constraints of information analysis and acceptable risk. It describes how to use effects-based operations at the operational level with emphasis on interagency coordination, effects-based mission planning, and continuous assessment. Finally, the paper addresses how the Air Force should use effects-based operations to define airpower's role in joint warfighting, employ airpower in a gradual context, and develop better joint air operations plans.

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EFFECTS-BASED OPERATIONS: THEORY, APPLICATION AND THE ROLE OF AIRPOWER

The concept of effects-based operations is unfairly criticized in the joint community. Critics think the concept relies on perfect information, advanced technology, and precise air attack; therefore, it is an unachievable, narrowly focused warfighting panacea that ignores the fog and friction of war. This paper proposes an alternative view. Effects-based operations is a theory that helps determine how to use the elements of power to attain national security objectives. Effects-based operations does not depend on information dominance, high-end warfare, or even precision strike to make it useful. Additionally, because it is not an operating concept like Rapid Decisive Operations[1], effects-based theory is applicable across the spectrum of conflict. The first section defines effects-based operations theory and explains how it helps develop and assess strategy within the constraints of information analysis and acceptable risk. Section two describes how to use effects-based operations at the operational level with emphasis on interagency coordination, effects-based mission planning, and continuous assessment. The third section addresses how the Air Force should use effects-based operations to define airpower's role in joint warfighting, employ airpower in a gradual context, and develop better joint air operations plans.

EFFECTS-BASED OPERATIONS THEORY

Major General David Deptula, an active advocate for effects-based operations, has argued that during Operation DESERT STORM, technological advances in airpower, specifically stealth aircraft and precision guided munitions, enabled the first application of the concept. As the lead air planner, he encouraged the Joint Force Air Component Commander's (JFACC) staff to change their targeting paradigm and focus on desired effects instead of target destruction. For example, achieving air superiority meant disabling the Iraqi integrated air defense system. Traditional operations would have focused on destroying missile launchers, radars, and air defense control centers. Instead of doing this, stealth aircraft, armed with precision guided munitions, attacked critical links and nodes in the air defense system. The attacks achieved the effect of functional system breakdowns and did so with minimal operational risk and lower cost in terms of sorties and weapons when compared to traditional methods. Deptula bolstered his argument using results from air operations in Bosnia and Kosovo. Based on his analysis of these operations, Deptula defined effects-based operations as 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. Effects-based operations improves on current warfighting methods because it reduces force requirements, casualties,

forward-basing needs, and conflict duration.[2] Not surprisingly, Deptula argued precision air attack is the best way to exploit effects-based operations and therefore, the Air Force should be the decisive element of American military power. Unfortunately, his strong advocacy for airpower caused some critics, notably soldiers, to ignore the valuable insights he offered.

U.S. Joint Forces Command (JFCOM) is also a proponent of effects-based operations, particularly at the strategic and operational levels of war. Like Deptula, JFCOM's focus is on achieving desired effects, not processing through target lists. Effects-based operations, according to JFCOM, is a knowledge-based process that predicts enemy reactions. By predicting enemy behavior and understanding his system, effects-based planning can direct attacks against critical nodes and links that should cause a breakdown in cohesion and destroy the adversary's ability to resist. Put "simply," effects-based operations generate strategic effects "through the synergistic, multiplicative, and cumulative application of the full range of military and nonmilitary capabilities at the tactical, operational, and strategic levels."[3] The result should be a quicker, cheaper victory especially when compared against a strategy of annihilation or attrition. Not surprisingly, JFCOM's views have received considerable criticism, especially from land power advocates.[4]

Deptula and JFCOM have both emphasized the reason for using national power is to achieve a particular strategic outcome. They also correctly identified the synergies to be gained from integrating military with non-military instruments of power. Problematically, critics have ignored the positive aspects of their arguments because Deptula and JFCOM have linked effects-based operations to the emerging operational concept called Rapid Decisive Operations.[5] Rapid Decisive Operations evolved from Joint Vision 2020 and has been the subject of sharp critique. Criticisms have included its narrow focus on high-end, small-scale contingencies; reliance on near perfect information; an enemy that operates as a compensating adaptive system of systems with vulnerable critical nodes; and the assumption that speedy execution will always achieve the political aim.[6] Tying effects-based operations to Rapid Decisive Operations has unfairly denigrated the potential benefits of effects-based operations. The concept of Rapid Decisive Operations relies on the ability to predict enemy reactions using effects-based operations, but effects-based operations is more than an enabler for that one specific operational method. Effects-based operations is a general guide for employing national power to achieve strategic objectives in almost any scenario.

Defining effects-based operations as theory is the first step in divorcing it from specific operational concepts. Clausewitz wrote, "The primary purpose of any theory is to clarify concepts and ideas that have become, as it were, confused and entangled."[7] Additionally,

"[t]heory will have fulfilled its main task when it is used to analyze the constituent elements of war...to explain in full the properties of the means employed and their probable effects..."[8] Effects-based operations, correctly explained, fits the Clausewitzian definition of theory. For the purpose of this argument then, effects-based operations theory is a method of determining the correct application and integration of national power to achieve specific effects within the bounds of acceptable risk. Effects can physically, functionally, or psychologically impact the enemy and coerce or compel him to change his behavior leading to a desired outcome.[9] Although effects-based operations can enable strategic, operational, or tactical outcomes, this paper focuses on strategic and operational outcomes, where effects-based operations offers the greatest advantages over current planning and execution methods.

EFFECTS-BASED PLANNING AND EXECUTION

A major shortfall of traditional objectives-based planning is it assumes a linear relationship between action and objective; the correct action executed perfectly will attain the desired objective. (See Figure 1)

FIGURE 1: TRADITIONAL OBJECTIVES-BASED PLANNING

Unfortunately, war is not linear. Instead, it is a non-linear activity where military actions produce multiple reactions that are difficult to predict.[10] The non-linear nature of war is captured by current chaos theory. The theory states that within complex systems nearly all inputs will "lead to unpredictable, irregular behavior." In other words, war is not proportional or additive.[11] Even small, seemingly insignificant actions can cause large and frequently unforeseen effects. In addition, at the same time an action generates effects on one objective, it can produce unpredicted effects on a different objective. There is not a linear relationship between actions and objectives. Instead, actions produce a variety of effects, and the effects determine whether or not the objective is achieved. Figure 2 adds the concept of effects to the traditional linear planning model.[12]

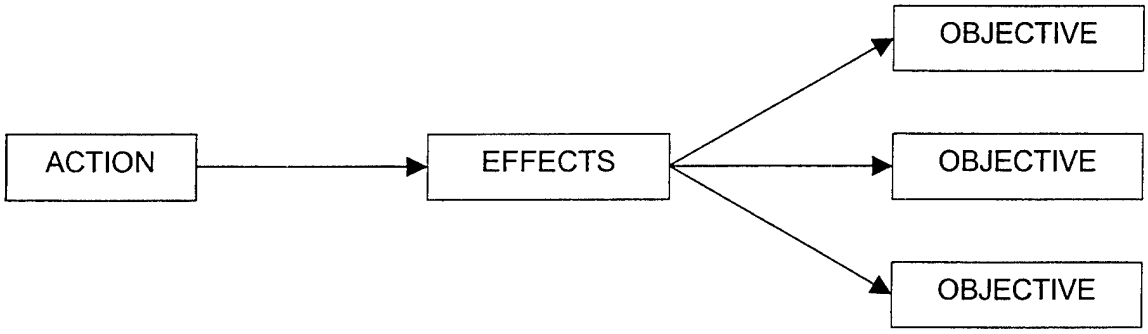


FIGURE 2: EFFECTS-BASED PLANNING

In the event strategic aims are clear, the enemy is politically isolated, and military force is the dominant instrument, linear planning may succeed. Encountering such a simple environment, however, is unlikely. Instead, a host of complicating military and political factors will exist. Most adversaries will take advantage of these factors by adapting, substituting and compensating to overcome operational problems and they will try to change the strategic environment by attacking alliances, manipulating international opinion, or influencing U.S. domestic politics. Saddam Hussein, for example, used messengers to compensate for a disrupted communication system and he tried to bring Israel into the war in an effort to weaken the U.S.-led coalition. Effects-based operations offer commanders a methodology to cope with the non-linear nature of war.

The first step in effects-based planning is to determine the effects that will attain the desired strategic outcome. This step begins with the political aim as articulated by the civilian leadership. The Joint Force Commander then develops supporting theater objectives and selects the physical, functional or psychological effects that might generate the desired change in an enemy's behavior. Optimally, the Joint Force Commander and his component commanders will reach agreement on the key strategic and operational effects necessary for success. Typically though, individual experience, service culture, and differences of opinion will lead senior leaders to alternative solutions. Operation ALLIED FORCE provided an example of how debate over desired effects can cause friction at the highest levels.

Operation ALLIED FORCE evolved into a 78-day NATO airpower operation in which one of the objectives was to stop Yugoslav President Milosevic from using violence against ethnic Albanians in Kosovo.[13] U.S. Army General Wesley Clark, Supreme Allied Commander Europe, led NATO forces and U.S. Air Force Lieutenant General Michael Short was the Air Component Commander. The generals agreed on the strategic objective, stop the ethnic cleansing, but they disagreed on the effect needed to achieve it. Clark wanted a physical effect: attack the

armed forces committing the atrocities. Short wanted to generate functional and psychological effects targeted directly at Milosevic. He believed that attacking command, control, and key infrastructure targets would cause Milosevic to accept NATO's demands.[14] The debate was never resolved, NATO attacked both target sets, and Milosevic gave in. Success came from a combination of factors that did not include unity of effort at the highest levels of command and the operation highlighted the difficulties involved with determining appropriate effects.[15]

Once the senior staff determines the desired effects, planners begin analyzing potential courses of action. Proper analysis begins with a net assessment of the strategic, operational, and tactical environment and the analysis extends beyond military capabilities. Analysts must consider culture, religion, economics, and diplomacy as these factors will impact the conduct of the war as much as the military balance of power, if not more. Other aspects of the assessment include the objectives of all participants and the value each attaches to his objective. The analysis should estimate enemy capabilities in all four areas of power: diplomatic, economic, information, and military. The military assessment should measure organizational strengths and weaknesses in doctrine, training, leadership, and equipment for both friends and enemies. Finally, the assessment must determine what peripheral allied interests, on either side, could influence the war.

The capability to predict effects is determined by the quality of the net assessment and the commander's ability to use the net assessment to make decisions. Since the net assessment depends on collecting and analyzing information, information is a critical enabler for effects-based operations. Critics understand this dynamic and perceive information as a limiting factor, because they think information superiority is a requirement for effects-based operations. Information superiority is a key component of Joint Vision 2020, the Department of Defense's roadmap for developing future warfighting capabilities.[16] Information superiority, according to detractors, is not attainable because no amount of technology will deliver complete information, the proliferation of information technology serves the enemy as well as it serves the United States, and even infinite information is useless without quality analysis. These criticisms have merit, but they do not apply to effects-based operations. Effects-based operations do not require perfect information, information superiority, or information dominance. What effects-based operations require, is analysis sufficient to support decision-making. Excellent information coupled with superior analysis helps predict effects, but limited information and incomplete analysis does not invalidate effects-based theory. Commanders simply need to account for the quality of the net assessment when evaluating courses of action realizing that poor net assessments will lead to a wider variety of unpredicted effects.

Armed with a net assessment, effects-based planners can evaluate courses of action. Planning doctrine requires the selected course of action to be adequate, feasible, acceptable and consistent with joint doctrine.[17] Planners can ensure the selected course of action meets these four criteria only after considering that every action will produce as many as four differing effects: predicted-desired effects, predicted-undesired effects, unpredicted-desirable effects, and unpredicted-undesirable effects. It is also important to understand that a single action will impact the objective at hand as well as other objectives in the campaign. (See Figure 3)

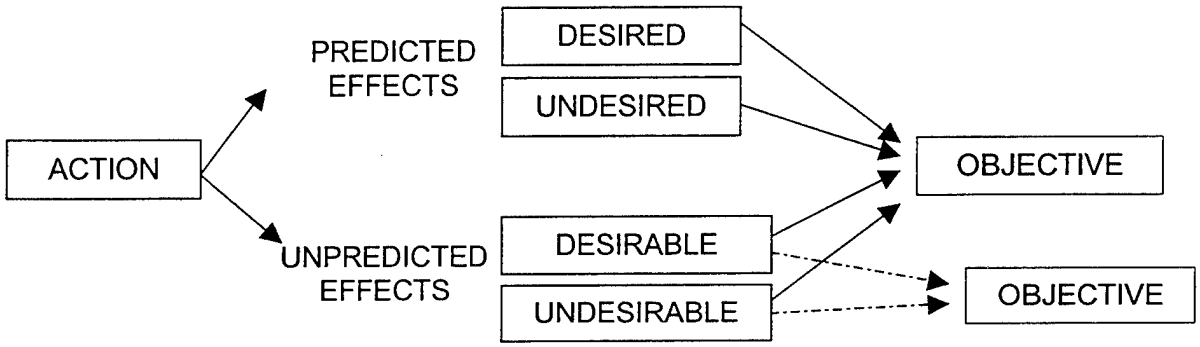
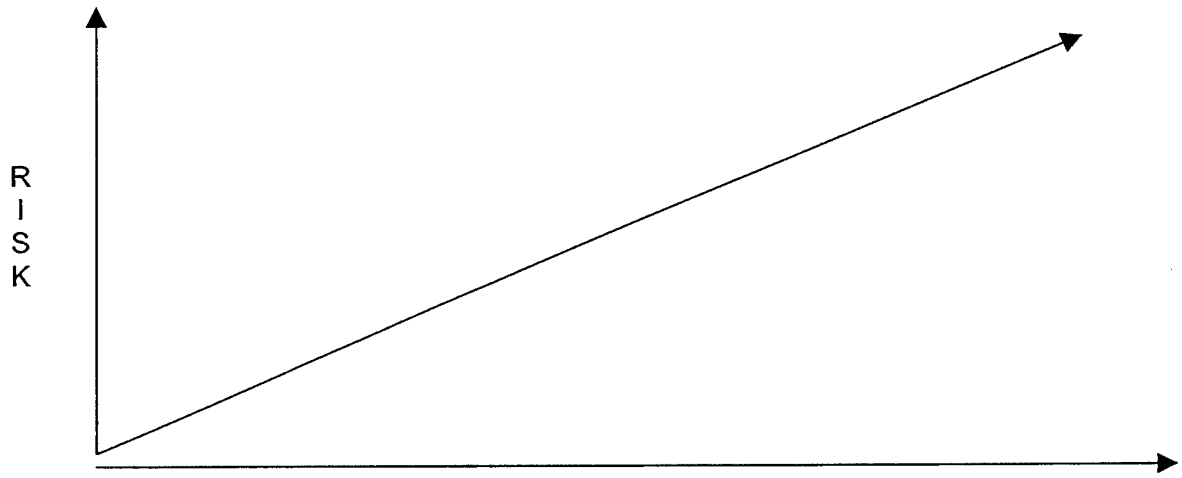


FIGURE 3: FOUR TYPES OF EFFECTS

The Joint Force Commander would like to select a course of action that generates only predicted effects. Predicted effects, even if they are not all desired, make a cost-benefit analysis possible and allow the commander to select a course of action where the advantages of the desired effects outweigh the disadvantages of the undesired effects. Unfortunately, there will always be unpredictable effects; war is inherently unpredictable because it occurs between animate adversaries who interact within complex environments subject to constant friction. Clausewitz observed, "[e]verything in war is simple, but the simplest thing is difficult. The difficulties accumulate and end by producing a friction…This tremendous friction…brings about effects that cannot be measured, just because they are largely due to chance."[18] There are three sources of friction, one of which is the chaotic, non-linear nature of war. The second source of friction is the unpredictable human behavior under generated by the pressures and dangers of war. The third source is information uncertainty. Useful information is lost in the system noise, incorrectly interpreted or analyzed, and not always available to the commander at the right time for making a decision.[19] These three sources of friction produce chance events that cannot be eliminated from warfare regardless of advances in technology.[20] The existence of friction and chance does not mean there is no predictability in war; it just means there will always be surprises. The commander must use his intuition, experience, training, and common

sense to compensate for unpredictable events because they frequently determine strategy's success or failure.[21] He can never eliminate friction and chance; instead his goal is to be less affected by these elements than is the enemy.[22]

Understanding that combat will always be unpredictable helps the Joint Force Commander assess risk. In effects-based operations, risk is measured by the potential for an action to produce unpredicted outcomes. When the probability of unpredicted effects is low, risk is low. Conversely, when the probability of unpredicted effects is high, risk is high. Allies, coalitions, and wide international interest create complex strategic environments in which the possibility of significant unpredictable effects increases. Military parity also increases risk because the operational outcome is less certain. Additionally, risk is higher when one side is willing to use an asymmetric capability like chemical weapons or direct attacks on civilians. These factors all increase risk because they increase the probability of unpredicted effects. Figure 4 and the following three examples further illustrate the relationship between unpredictable effects and risk.



FACTORS THAT INCREASE THE PROBABILITY OF UNPREDICTABLE EFFECTS:
COMPLEX STRATEGIC ENVIRONMENT
MILITARY PARITY
HIGH POTENTIAL ENEMY WILL USE WMD
INACCURATE OR INCOMPLETE NET ASSESSMENT

FIGURE 4: UNPREDICTABLE EFFECTS AND RISK

A low risk example is Operation JUST CAUSE, the 1989 U.S. attack into Panama. The strategic environment was benign because international interest in Panama was limited to regional actors and events leading up to the invasion put the U.S. on moral high ground.[23] The net assessment was accurate due to similar cultures as well as long-term U.S. presence in the country. These factors combined with overwhelming military force and no requirement for allied support, meant the selected course of action would likely produce predictable-desirable effects.

Operation DESERT STORM is an example of moderate risk. The strategic environment was complex due to wide international interest in the conflict and vastly different cultures among the allies. The spectrum of potential unpredicted effects was wide because of the ongoing Arab-Israeli conflict, the uncertain roles countries like Iran, Syria, Jordan and Russia might play, and the possibility of Iraq using chemical or biological weapons. Factors mitigating risk included a good net assessment resulting from extended U.S. involvement in the region, a marked military advantage for the allies, a brazen act of Iraqi aggression, and an effective coalition that produced political will, basing access, and a common strategic end state. The selected course of action, remove Iraqi forces from Kuwait, promised to generate mostly predicted effects and the desired effects outweighed the undesired effects. The array of possible unpredictable effects included coalition problems relating to Israel and the unknown effects that would have resulted from Iraq's use of chemical or biological weapons. Isolating Iraq politically and persistent attacks against weapons of mass destruction facilities kept potential risk from unpredictable effects within an acceptable range.

An example of high risk is the abrupt termination of Operation DESERT STORM. Continued operations into Iraq would have increased the potential for unpredicted and undesired effects. Limited Arab support for further offensive operations would have increased risk by threatening the coalition's political cohesion and reducing military and logistic support to forces continuing the attack. Destroying the Iraqi army or taking down the Iraqi regime would have had unpredictable effects on regional stability. Threatening Saddam Hussein's survival may have created a catalyst for Iraqi chemical or biological attacks. Friendly casualties and collateral damage may have turned popular opinion against the operation. In sum, the potential array of unpredictable effects created an unacceptably high risk level and the United States halted offensive operations.

After the commander selects a course of action that meets the risk criteria, he must establish measures of effectiveness to determine if operations are producing the predicted effects. Measures of effectiveness typically consist of objective data points evaluated numerically to determine progress. It is sometimes difficult to define meaningful measures

because what to measure is not apparent. Additionally, information is frequently sparse, there is limited time available for analysis, and analysts looking at the same data can reach different results based on personal experience and organizational bias. Additionally, the fog and friction of war introduces "noise" into the system making it difficult to discern valid data from spurious, random events. Lastly, measuring effects does not always lend itself to numerical evaluation. Nevertheless, commanders must measure something if they are going to make meaningful adjustments to the campaign plan.[24]

Choosing the correct measures of effectiveness is critical because evaluation against those measures will determine resource allocation, movement between campaign phases, and strategy changes. Commanders must devote personal attention to determining the correct measures as component commanders with the same operational objectives can select different measures of effectiveness. For example, during the Vietnam War, the Army and Marines had the same objective of eliminating Viet Cong and North Vietnamese influence in South Vietnam. The Army measure of effectiveness was dead enemy soldiers and this drove search and destroy tactics with no long-term presence in any specific area. The Marines measured effectiveness using rice crop production. Increased rice production came from social, economic, and political stability that was only possible if the villagers were free to live in peace. To drive their measures of effectiveness, Marines established protected positions and long-term presence with small teams to discourage enemy action in their sectors. The theater commander was not measuring rice production; instead he was counting dead enemy soldiers. The result was the Marines were forced to change their tactics to show progress against the Army measure of effectiveness. This example demonstrates how measures of effectiveness can drive strategy and adversely affect unity of effort.[25]

Once combat operations are underway, effects-based operations theory facilitates the reassessment process. Reassessment has two components: continuously evaluate combat operations against established measures of effectiveness and adjust strategy as required to generate the desired effects. Good measures of effectiveness allow the staff to easily evaluate predicted effects, both desired and undesired. Assessing unpredicted effects will be more difficult for several reasons. First, analysts may be slow to recognize unpredicted effects because the post-attack evaluation process will naturally look for indicators of predicted effects. Second, preplanned measures of effectiveness may not be helpful in evaluating unpredicted effects. Third, unpredicted effects may impact not only on the planned objective, but also on other operational or strategic objectives. Finally, the time available for analysis and reaction will always be constrained.[26] These factors call for an adaptive, flexible command structure that can

evaluate and react to unpredictable effects. Commanders must take advantage of unpredicted-desirable effects and minimize the adverse impact of unpredicted-undesirable effects.

Assessing effects will be complicated by the presence of second and third-order effects. Such effects are commonly termed indirect effects, because they do not result from direct actions taken, but instead result from the cascading or sequential nature of effects within a complex system.[27] Multi-order effects are hard to evaluate because the effect is separated from the action in either time or space making it difficult to determine which action generated the effect. Without identifying the generating action, it will be impossible to adjust the campaign plan to leverage desirable effects or prevent additional undesirable effects. Planners can predict some indirect effects, but analysis will always be difficult even with accurate measures of merit. Nevertheless, it is essential that commanders account for multi-order effects because they may impact friendly operations as much as they do enemy operations.

The inevitability of unpredicted effects and the chaotic nature of multi-order effects are factors, which drive the second component of reassessment: adjusting the campaign plan to achieve desired effects. After the commander evaluates results against pre-planned measures of effectiveness and determines the source and impact of unpredicted effects, he must be willing to change the original plan, drastically if necessary. Before the commander makes major adjustments however, he must be confident that the post-attack analysis was as specific and multi-faceted as the original net assessment. The analysis must go beyond simple battle-damage assessment and look for the physical, functional, and psychological effects necessary to achieve the desired outcome. If the desired effects are not forthcoming or if it appears operations are exceeding the limits of acceptable risk, the commander must change some component of his strategy. Effects-based operations as described here is a process of net assessment, action, reassessment, adjustment, and action. It is continual process and, properly implemented should keep operations oriented on the original aim; not on processing target lists or securing decisive points. In addition, if the cycle is timely, it also will generate a compounding positive effect because friendly forces will act and react inside the enemy's decision cycle.[28]

BISMARCK AND EFFECTS-BASED OPERATIONS

Effects-based operations do not rely on technology, precision strike, airpower, perfect information or any other 21st century warfighting tool. To prove this point, the following case study illustrates how effects-based operations employed at the strategic level were instrumental to Prussian victory in the 1866 Austro-Prussian War.

The Austro-Prussian War was the final chapter in the struggle between Prussia and Austria for control of the German Confederation. The German Confederation consisted of 39 states and was formed in 1815 by the five European Powers (England, France, Russia, Austria, and Prussia) following the defeat of Napoleon. The purpose of the confederation was to maintain the European balance of power in two ways. First, the confederation joined Austria and Prussia with the small German states in order to prevent outside powers from annexing German territory for economic and military gain. Second, while Austria and Prussia had the most influence within the confederation, the nature of the governing federal bureaucracy prevented either of them from consolidating political control by dispersing influence throughout the member states. After 1848, Austria and Prussia were engaged in numerous attempts to gain control of the confederation by forming alliances among the various smaller states.[29] The war's precipitating event was a disagreement over control of two recently acquired northern provinces, Schleswig and Holstein. Austria and Prussia gained control of these provinces as a result of the 1864 Danish War.

Otto von Bismarck, Prussia's foreign minister, saw the dispute over Schleswig and Holstein as an opportunity for Prussia to gain complete control of the German Confederation.[30] With the strategic aim established, Bismarck conducted a net assessment of the diplomatic and military situation in Europe. Both diplomatic and military courses of action were available, but Bismarck's assessment led him to select a military option with limited objectives: defeat the Austrian army and dictate terms. Bismarck determined this course of action could produce significant risk from unpredictable and undesirable effects unless he could do two things. First, he needed to reduce the chances that France or Russia would enter the war on behalf of Austria. He accomplished this through a series of deft diplomatic maneuvers.[31] Second, Bismarck had to ensure a military advantage for Prussia because an indecisive or prolonged conflict would not have forced Austria's hand. Prussia had a significant military advantage in three areas. First, they had the world's best General Staff; they were trained, tested, and eminently capable of commanding and controlling large military organizations. Second, the Prussian commander-in-chief, Helmut von Moltke, was militarily superior to the Austrian commander Field Marshall Ludwig Benedek. Moltke was confidant, willing to take calculated risks, and had the support of a competent staff. Additionally, Moltke had trained the Prussian army using various war-gaming scenarios that prepared them to take the initiative on the battlefield. In contrast, Benedek was "a hesitant, weak-willed pessimist" who was slow to make decisions and unwilling to delegate authority. Prussia's third advantage came from superior weapons, tactics, and training.[32] Because Prussia's strengths were not widely recognized,

Bismarck was able to enhance Prussia's military prospects by reinforcing the sentiment that Prussia was militarily inferior to Austria. Bismarck further complicated Austria's problems by taking advantage of existing tensions between Austria and Italy. He secured a military alliance with Italy to open a second front along the Austrian-Italian border.[33] Bismarck's proactive approach at the strategic level controlled risk and reduced the probability of unpredictable effects generated by operational actions. His diplomacy allowed Moltke to exercise operational art, and achieve a decisive Prussian victory at Königgrätz.

The victory demonstrated that success as well as failure requires a reassessment process. Prussian King Wilhelm, despite his initial reluctance to attack Austria, wanted to take advantage of the situation and march on to Vienna. Moltke, recognizing the need to end the war before Russia or France intervened, pressed the offensive south towards the Austrian capital. At this point, Napoleon III proposed an armistice that forced a strategic pause. Prussia could not ignore France's interest in the conflict for fear of French military action in the Rhine provinces; a dangerous proposition with the Prussian army deployed so far east. French intervention also bought the Austrian's time and opened up the possibility of an armistice between Austria and Italy that would have freed Austrian forces to move north and oppose the Prussian army.[34] Finally, disease and logistics began to threaten Moltke's offensive.[35] Bismarck conducted a reassessment that covered all military and non-military factors and subsequently convinced Wilhelm it was time to negotiate a settlement with Austria. He argued that further offensive actions would have generated unpredictable effects; most significantly, outside power involvement that may have threatened achieving the original strategic war aims. According to political scientist Richard Smoke, Bismarck knew the character of the war had changed substantially and "nearly all the parameters had shifted in ways that were too complicated, diffuse, and basic to be calculated with confidence."[36] Bismarck had used effects-based operations to achieve the desired strategic outcome.

Bismarck determined an achievable political aim and established supporting objectives. He conducted a net assessment, determined desired effects, evaluated courses of action, assessed risk, and shaped the environment to enable Prussian success. After the initial victory, Bismarck reassessed the situation against pre-planned measures of effectiveness and determined there was no need to change the plan. Instead, it was time to declare victory and move on to France. Thanks in large part to Bismarck's use of effects-based operations, Prussia was successful despite its inability to conduct precision air attack under the umbrella of information superiority.

EFFECTS-BASED OPERATIONS IN THEATER

Effects-based operations can help commanders better plan and execute campaigns. To achieve that end, Joint Force Commanders first need a theater-level interagency coordination element and second, they must form an Effects Assessment Board to ensure the campaign stays oriented on generating the effects necessary to attain the operational and strategic objectives.

INTERAGENCY COORDINATION

The Secretary of Defense noted that the commander of United States Central Command was "left alone" by Washington to conduct military operations in Afghanistan.[37] On the surface, such autonomy seems desirable when comparing Vietnam, where there was significant guidance from Washington, with Operation DESERT STORM, where the commander was relatively free to conduct operations. Conflicts since Operation DESERT STORM however, including those in Somalia, Bosnia, Kosovo, and Afghanistan, have been more similar to Vietnam. Commanders in these conflicts faced unclear military objectives and they found that political, diplomatic, and coalition issues heavily influenced operational decisions. By implication, when objectives are limited, the use of force is constrained and political considerations determine military options. In these cases, the commander has no choice but to work closely with Washington in order to integrate military and non-military actions within a single coherent strategy. Effects-based operations provides the framework to coordinate diplomatic, information, economic, and military actions, but to do so commanders need an interagency element on their staffs.

Recently, several regional commanders asked for civilian agents to be assigned to their commands in order to improve interagency coordination.[38] Placing civilian representatives on all combatant staffs is unlikely due to limited manning within the civilian agencies and organizational barriers that exist in both communities. Additionally, there may not be sufficient work for these agents in day-to-day operations. A better option aligns itself with the Standing Joint Task Force headquarters idea described in the 2001 Quadrennial Defense Review. The review envisions standing headquarters assigned to each of the regional commands and their mission is to provide uniform operating procedures, utilize adaptive mission planning tools, and provide the capability to move expertise among the commands.[39] One element of these standing headquarters should be responsible for interagency coordination. Since assigning an interagency element to each region is infeasible, the Joint Staff could stand up one element in a central location. JFCOM would be a logical place to facilitate interagency coordination, because

the element would be in close proximity to joint exercises, experiments, and doctrine development.

The standing interagency coordination element would enhance effects-based operations in three ways. First, it would allow people who do not typically work together a chance to develop personal relationships, share expertise, and explore innovative ways to combine the elements of national power together to achieve operational and strategic effects. This is important because organizations tend to develop new and better ways of doing things when they routinely work together. An example of this was when U.S. Special Forces developed techniques for providing close air support from high altitude bombers in support of Afghan fighters on horseback.[40] The impetus to develop new tactics and techniques would come from the element's second mission, which would be to help develop and review theater war plans. The interagency element would periodically travel to the regional headquarters and actively participate in various stages of planning to include mission analysis, course of action evaluation, and strategic concept development. Additionally, the element would serve as the conduit between the regional headquarters and the interagency during the plan review and approval phase. Performing these functions would provide the interagency element with regional expertise and ensure each command an equal voice in the interagency coordination process. The third mission of the interagency element would be crisis response. They would have to be deployable, trained, and able to integrate with the rest of the combat staff in theater. Their mission would be to help the Joint Force Commander mass effects by integrating diplomatic, economic, and information activities with military force.

The interagency element will only be effective if civilian and military organizations provide capable people and give them the authority to act on behalf of their respective agencies. That authority will have bounds and on occasion the National Security Council will need to resolve contentious issues that cross agency boundaries. Creating an interagency element that is sufficiently staffed and empowered to perform the mission outlined here is certain to meet numerous organizational roadblocks, however, it must be done if Joint Force Commanders are going to realize the full benefits of effects-based operations.[41]

EFFECTS-BASED MISSIONS

Using traditional objectives-based planning, the commander analyzes the political aim and develops supporting theater objectives. The staff develops sub-objectives and supporting military tasks that they assign to various component commanders for execution. The process relies on a linear strategy-to-task relationship focused on the intended results.[42] The process

can produce "stove-piped" campaigns that do not generate synergistic joint, interagency operations. This traditional approach fails to maximize desired effects and it allows for the possibility that an action taken by one component may work at cross-purposes to other ongoing military or non-military missions. Effects-based mission planning and execution can correct these shortfalls

Joint Force Commanders need a staff element that is always looking at effects. During deliberate and crisis action planning, it is not difficult to focus on effects because planners have time to evaluate actions and analyze possible effects. Once operations begin, staying focused on effects is a challenge. There is a tendency for senior commanders to focus on operations and subsequently equate tactical results with achieving the strategic or operational objective.[43] In Vietnam for example, body count became the primary focus without connecting that metric to the desired outcome. More recently, during a 1999 war game emphasizing effects-based operations, the Air Force found that planners had a difficult time staying oriented on effects. Once the campaign started, their attention drifted to operational details and they lost focus on the effects needed to attain the campaign objectives.[44] A reoriented and renamed Joint Targeting and Coordination Board could help overcome these tendencies.[45] The board should be reoriented to focus on strategic and operational effects vice targeting issues. The Deputy Joint Force Commander should continue to chair the board. Board members typically include senior representatives from the component and functional commands. To fully assess effects however, the interagency element would need to be represented. Using the joint targeting board as an effects board has two advantages. First, as currently structured, the board has the seniority necessary to recommend major changes to the campaign if required. Second, the board's activities are already part of the staff's battle rhythm. The joint targeting board should be renamed the Effects Assessment Board.

The Effects Assessment Board would have two tasks: generating effects-based missions[46] and overseeing the reassessment process. In its first role, the board would use effects-based operations theory to generate effects-based missions. These would be broad missions focused on generating high-level operational effects that would directly impact the strategic objectives. The board would designate a lead element for each mission based typically on who controlled the preponderance of force for that particular action. In cases where the selected action is primarily non-military, the supported element may have no military force, but is in the best position to integrate military and non-military actions. The effects board would also allocate forces, and apportion priority for air support, to the lead element. Creating effects-

based missions would drive joint force integration and encourage interagency cooperation as the following two examples illustrate.

In the first example, the desired effect is to isolate the enemy from third country logistical support. The land component commander would be the supported element. He would deploy ground forces to block lines of communication, use airpower to interdict choke points, and integrate these actions with diplomatic efforts targeted at those providing support to the enemy. The diplomatic coordination would be critical to determine the acceptable scope of military force. Could the commander direct attacks inside a third country or against outside assets operating within enemy territory? Additionally, this coordination would allow optimum timing between military actions and diplomatic activity. The State Department could issue a demarche against providing support in the morning and military forces could destroy a supply convoy in the afternoon that failed to reverse course after being warned. The second example is a mission to create an effect where the enemy leader is unable to maintain popular support for continued resistance. An information operations cell would be the lead element. It would task military forces to provide humanitarian assistance, destroy selected communication nodes, and conduct attacks to diminish civilian or military morale. Special operations forces would conduct psychological operations in coordination with a State Department public diplomacy campaign. Finally, diplomatic efforts would focus on internationally isolating the current leadership and supporting a replacement regime. These examples show how effects-based operations could generate synergistic effects by integrating and synchronizing military and non-military force applications.

The second function of the Effects Assessment Board would be to oversee the reassessment process. Reassessment determines what mission changes are needed. One reason changes may be required is because actions are not producing predicted effects or actions are producing unpredicted effects that put the strategic or operational objectives at risk. To rectify these problems, the effects board would look for the causal linkages between actions and effects. In other words, why did a given action produce a particular effect?[47] An example of this concept comes from the World War II combined bomber offensive. British strategic bombing doctrine, at the beginning of the war, called for air attacks against the enemy's industrial centers, economic infrastructure, public utilities, and transportation networks. Air planners hoped these attacks would generate "war weariness" and destroy the nation's will to fight.[48] They also suspected the attacks would generate a popular revolution that might end the war.[49] When it became apparent the Royal Air Force could not bomb with sufficient precision to destroy the original targets, the British took to bombing urban centers, including worker housing.

The intent was to destroy the industrial tools and instill such fear in the workers that they would stay home.[50] In effects-based operations terms, strategic bombing was the selected action and reduced industrial output or popular revolution was the desired effect. Lower morale and war weariness was the postulated causal link between action and effect. While there is evidence that by 1943 German morale was lower, industrial output continued to increase and popular discontent focused on the attackers not the Nazi regime.[51] These facts suggest British actions did not produce the desired effects because they failed to identify the correct causal link.

This analysis is not meant to imply that British strategic bombing did not contribute to Allied victory. The bombing generated unpredictable-desirable, multi-order effects. In an attempt to retaliate against England, the Luftwaffe wasted the majority of its bomber fleet in futile attacks on Britain. In addition, the Germans diverted enormous resources into the V-series rocket program. The rocket attacks had no significant impact on the Allies, yet the diverted resources could have produced an additional 24,000 German fighters.[52] The end result was British bombing diverted German resources into an area that had minimal impact on Allied operations. The multi-order desirable effects generated by their strategic bombing would have been impossible for the British to predict. The fact that fifty years later historians continue to debate the effects of the Combined Bomber Offensive highlights the difficulties in linking actions and effects.

Although it is difficult, the reassessment process must attempt to identify causal linkages. Identifying causal linkages will help determine why an action failed to generate the desired effect or why it produced an unpredicted effect. The problem could have been in tactical execution or in the integration and synchronization of military and non-military means. It could have been because second or third order effects from seemingly unrelated actions were producing counterproductive effects. Another possibility is the strategic or operational environment may have changed and the original course of action is now invalid. Perhaps the original net assessment underestimated the enemy's capability to adapt. Maybe the problem was temporal and the effect was not evident as quickly as predicted, or maybe it was just the fog and friction of war. These are all possibilities commanders are willing to accept, but there is another significant consideration. Maybe the strategy was ineffective because it was based on invalid doctrinal assumptions. This last case is potentially the most dangerous, because military forces are typically slow to acknowledge poor strategy or doctrine, even in the face of contrary overwhelming evidence.[53] Identifying causal links, understanding the nature of indirect effects, and having the courage to admit their doctrine may be wrong, will all help commanders make the right adjustments and stay focused on the strategic goal.

THE ROLE OF AIRPOWER IN EFFECTS-BASED OPERATIONS

The Air Force is a strong proponent of effects-based operations and airmen have contributed significantly to the concept's development. Unfortunately, Air Force contributions have been eclipsed by arguments over the source of decisive effects. Airmen must shift the debate from which service is decisive, to airpower's role in effects-based operations. The Air Force must also better integrate effects-based operations into its doctrine. Specifically, the doctrine must acknowledge that effects-based operations is key to making gradual airpower effective and it must integrate effects-based operations into the air operations planning process.

IS AIRPOWER DECISIVE?

Joint Doctrine states "any dimension of combat power can be dominant—and even decisive—in certain aspects of an operation or phase of a campaign," but victory comes from the commander's ability to synchronize and integrate joint force capabilities.[54] The most important part of this statement is the emphasis on synchronization and integration, yet soldiers and airmen have a propensity to needlessly argue over which service is dominant, or decisive. Soldiers contend since people live on the earth, that it is where decisive events occur. Until a force takes and holds ground, marches victoriously through the enemy capital, and dictates terms to the king, the war was not been won, at least not decisively. Thus the Army's contention that they "fight and win our Nation's wars."[55] One problem with this argument is it appears to ignore the fact that without the other elements of military power, most notably airpower, this scenario will not play out. Another problem is just because people on the ground make decisions, the Army is not the only element of force capable of compelling or coercing an enemy to do our will. Finally, decisive victory is not always the political aim. Since the end of World War II, the United States has not sought to occupy the enemy capital and force unconditional surrender. Instead, military force has provided a means of coercive diplomacy in support of limited strategic objectives. For their part, airmen since World War I have argued airpower can force enemy capitulation by attacking enemy morale, destroying key industries, and paralyzing enemy systems. Achieving success with these methods relies heavily on second and third-order effects and the ability to identify causal linkages. Since proving the benefits of indirect effects is difficult, airmen are constantly on the defensive trying to link air attack to enemy capitulation.

The debate over decisiveness is counter-productive and it reinforces the unfair stereotype that airmen think they can win wars alone. It is difficult to find proof that any senior Air Force leader believes this, but the existence of the myth makes advocating effects-based operations

problematic for airmen. Senior Air Force leaders can disarm many effects-based operations detractors by focusing on airpower's role within joint operations and recent publications reflect an effort to do just that. Air Force Vision 2020 states that the Air Force is a "partner in our nation's security" and "dominates the aerospace domain to facilitate the effectiveness of the Joint Team."[56] Other support is found in Major General Deptula's writings. His effects-based operations article published early in 2001 was airpower dominant and described the concept mostly within the context of Rapid Decisive Operations. His more recent article, however, on Air Force Transformation, described effects-based operations as the method in which "[a]erospace forces operate as part of a joint, interagency, and coalition team."[57] The best evidence the Air Force sees the big picture comes from general officers who recognize that airpower advocates can be their own worst enemies by arguing that airpower is the dominant force. In public presentations as well as private conversations, senior leaders stress the Air Force is only part of a larger effort. They all firmly believe in the tenets of airpower and its ability to be the critical component in many scenarios, but they also argue it is not a stand-alone solution to national security challenges.[58] This attitude will allow airmen to help promote effects-based operations and properly define the role of airpower in future joint doctrine.

EFFECTS-BASED OPERATIONS AND GRADUAL AIRPOWER

Limiting the use of force has traditionally been anathema to war fighters. Airmen, in particular, despise the concept of limited or gradual airpower.[59] They cite Vietnam's Rolling Thunder operation as the perfect example of how airpower was marginalized as a result of political restrictions. How these limitations may have contributed to the failed Vietnam strategy continues to fuel debate, but the air operations during Operation ALLIED FORCE suggest gradualism may have warfighting value. From the outset, airpower planners wanted to go "downtown" and "cut off the head of the snake." Post-war analysis suggests such aggressive attacks may have had undesired effects, fractured the NATO coalition, and actually extended the war. One reason is the time element. Early attacks directed at the most valuable target sets might have short-circuited ongoing diplomatic efforts directed at convincing Russia to support NATO. Another reason is attacking downtown Belgrade from the outset may have convinced Serb leaders they had nothing further to lose and reduced their incentive to cooperate. In addition, evidence suggests constant air raid warnings had a cumulative effect on civilians that resulted in war weariness and established a political climate that permitted Milosevic to negotiate. Lastly, the potential casualties may have overshadowed the implications of Milosevic's ethnic cleansing in the eyes of international public opinion.[60] Given these are all

second and third order effects, causal linkages are difficult to define and gradualism's value is hard to prove. Perhaps one reason gradualism succeeded in Kosovo lies in the fact Milosevic had almost no way to strike back at NATO, militarily or otherwise. Even if Air Force planners do not accept this evidence as a reason to investigate the value of gradualism, it is clear political restraints will force airpower into limited and gradual roles. The only way to leverage airpower's capability in a limited or gradual application is by using effects-based operations. Limited airpower, combined effectively with other instruments of military and non-military power, can still be a powerful coercive instrument. The Air Force needs to write doctrine for employing airpower in a limited or gradual fashion and the doctrine must be grounded in effects-based operations theory.[61]

JOINT AIR OPERATIONS PLANNING

A number of Air Force publications stress the goal of generating effects to achieve strategic outcomes, but the operational doctrine that guides developing air operations plans is deficient in applying effects-based operations theory. Developing a Joint Air Operations Plan is a five-stage process:

Stage 1, Operational Research
Stage 2, Objective Determination
Stage 3, Center of Gravity Identification
Stage 4, Strategy Development
Stage 5, Joint Air Operations Plan Development[62]

Stage 1, Operational Research, is the net assessment phase and the doctrine discusses analytical factors needed for a comprehensive understanding of the theater. The key dynamics are available forces, rules of engagement and other military-specific elements. The doctrine focuses on broader issues such as allied support, the role of nongovernmental organizations, and political and social issues, but only in the context of humanitarian operations. To accurately predict multi-order effects, especially those at the strategic level, broader, non-military factors need to be part of the analysis for all mission types. Additionally, this stage should consider where this operation fits within the National Security Strategy. Part of the analysis should be to confirm the importance of the mission in relation to the hierarchy of national interests and determine the level of domestic public and political support. Determining the level of national interest and support is a political task, but airmen must understand these elements to conduct effects-based operations.

Step 2, Objective Determination, is the traditional linking of component objectives to joint force objectives however, as written, the doctrine does not capture essential characteristics of effects-based operations. In this step, planners should focus on the desired effects airpower must generate. These effects may be generated alone or with other elements of power. When combined with other sources, planners must determine airpower's role as either a supported or supporting element. Defining this relationship is necessary for planning and executing effects-based missions. Step 3, Center of Gravity Identification, is a good discussion but is not a process for the air component commander. The Joint Force Commander determines strategic and operational centers of gravity and his campaign plan focuses on attacking those centers of gravity in order to achieve the political aim. More correctly, Step 3 should reconfirm the centers of gravity and ensure the desired effects established in Step 2, weaken the enemy center of gravity without adversely affecting friendly centers of gravity. Step 4, Strategy Development, should be rewritten to capture the tenets of effects-based operations. Briefly, the JFACC should consider various courses of action designed to achieve the desired effects. Based on information analysis, he should assess risk and select actions likely to produce desired effects while minimizing unpredictable effects. Because of airpower's theater-wide capability to produce operational and strategic effects, planners need to look very closely at all other operations, military and non-military, to evaluate the potential for unpredictable airpower effects. This is also the place doctrine should consider how limited or gradual air operations might fit into the plan.

Step 5, Joint Air Operations Plan Development, brings together the results of the previous four steps. It shows how joint aerospace capabilities support achieving the Joint Force Commander's objectives. Further, the plan defines targets, identifies phasing and indicates required capabilities. Missing from the plan is a specific reassessment process. The doctrine refers to revisiting the operational research phase and talks of the importance of measurable objectives, but it needs to detail the reassessment process in a separate stage. The reassessment stage should emphasize assessing operations against universally agreed upon measures of effectiveness to determine if actions are generating the desired effects. The additional stage should also evaluate unpredicted effects and their sources in order to decide if and how to alter the air operations plan. Adding reassessment to air operations planning completes the effects-based operations cycle and will help keep airmen focused on achieving desired effects not processing target lists.

CONCLUSION

Critics who reject the emerging doctrine of effects-based operations do so at their own peril. If they fail to embrace the concept, Joint Force Commanders may be unable to effectively combine all the elements of power. Effects-based operations theory offers the strategic and operational artist a guide for organizing his thoughts and applying available resources to the challenge at hand. The theory helps commanders evaluate courses of action, analyze risk, and conduct continual reassessment. Implementing effects-based operations at the theater level requires organizational changes to better integrate interagency actions and ensure campaigns stay focused on operational and strategic effects. The Air Force is a logical advocate for effects-based operations because airpower theory is grounded in many of the same concepts, particularly the ability to generate and leverage second and third-order effects. Unfortunately, overemphasis of airpower's role in effects-based operations has served to alienate portions of the joint community. Air Force leaders must continue to stress airpower as part of a joint, interagency team and they must update their doctrine to take advantage of effects-based operations. The complexity of today's international environment will continue to challenge the skills of those charged with using American power to protect the nation. Effects-based operations is the key to bringing that power to bear.

WORD COUNT = 8547

ENDNOTES

[1] A Joint Operating Concept in development at USJFCOM. Discussed later in the paper.

[2] David A. Deptula, "Effects-Based Operations: Changes in the Nature of War," 2001; available from < http://www.aef.org/pub/psbook.pdf >; Internet; accessed 8 January 2002.

[3] U. S. Joint Forces Command, A Concept Framework for Effects-based Operations (Draft White Paper), J9 Concepts Department (Norfolk, VA: U.S. Joint Forces Command,1 Aug 2001), ii.

[4] This assertion based on views expressed by fellow Army War College students. In addition see: Antulio J. Echevarria, Rapid Decisive Operations: An Assumptions-based Critique (Carlisle Barracks, PA: U.S. Army War College, 2001)

[5] RDO is defined "as a joint operational concept for future operations. A rapid decisive operation will integrate knowledge, command and control, and effects-based operations to achieve the desired political/military effect. In preparing for and conducting a rapid decisive operation, the military acts in concert with and leverages the other instruments of national power to understand and reduce the adversary's critical capabilities and coherence. The United States and its allies asymmetrically assault the adversary from directions and in dimensions against which he has no counter, dictating the terms and tempo of the operation. The adversary, suffering from the loss of coherence and unable to achieve his objectives, chooses to cease actions that are against US interests or has his capabilities defeated. See: U.S. Joint Forces Command, "A Concept for Rapid Decisive Operations (Coordinating Draft, version 2)," available from <http://www.saclant.nato.int/cde/Whitepapers/RDO.doc>; Internet; accessed 14 October 2001.

[6] Echevarria, vi.

[7] Carl von Clausewitz, On War, ed. and trans. Michael Howard and Peter Paret (Princeton NJ: Princeton University Press, 1976), 132.

[8] Clausewitz, 141.

[9] This definition is similar to JFCOM's, but somewhat simpler. The use of "coerce" or "compel" is important. Many see effects-based operations as a tool of coercion where the enemy is persuaded to change his behavior while he still has the means to resist. In other words he loses the will to continue. Effects-based operations is equally useful to compel. The enemy is compelled when he has no choice but to comply with the demands because he no longer has the capability to resist.

[10] Alan Beyerchen, "Clausewitz, Nonlinearity, and the Unpredictability of War," International Security 3, (Winter 1992/1993): 73.

[11] Beyerchen, 66.

[12] U. S. Joint Forces Command, "A Concept Framework for Effects-based Operations," 8.

[13] Earl H Tilford Jr., "Operation Allied Force and the Role of Air Power," Parameters 4 (Winter 1999-2000): 25.

[14] John A. Tirpak, "Short's View of the Air Campaign," Air Force Magazine Online September 1999; available from <http://www.afa.org/magazine/watch/0999watch.html>; Internet; accessed 13 February 2002.

[15] For a balanced analysis of why Milosevic surrendered when he did see: Stephen T. Hosmer, The Conflict Over Kosovo. Why Milosevic decided to settle when he did (Santa Monica, CA: Rand, 2001) and Benjamin S. Lambeth, NATO'S Air War For Kosovo: A Strategic and Operational Assessment (Santa Monica, CA: Rand, 2001).

[16] Information superiority is defined as the capability to collect, process, and disseminate an uninterrupted flow of information while exploiting or denying an adversary's ability to do the same. It is a key enabler to achieve full spectrum dominance. See Chairman of the Joint Chiefs of Staff, Joint Vision 2020 (Washington, D.C.: U.S. Government Printing Office, 2000), 8-10.

[17] Chairman of the Joint Chiefs of Staff, Doctrine for Planning Joint Operations, Joint Publication 5.0, (Washington, D.C.: U.S. Government Printing Office,13 April 1995), x.

[18] Clausewitz, 119-120.

[19] Barry Watts, Clausewitzian Friction and Future War (Washington, D.C.: National Defense University, October 1996), 123.

[20] Ibid., 21.

[21] Edward N. Luttwak, Strategy, The Logic of War and Peace (Cambridge, MA: Belknap Press of Harvard University, 1987), 4-5.

[22] Watts, 131-132.

[23] There had been attacks on U.S. servicemen and their families and the U.S. had made a case in the media for Noriega's involvement in drug trafficking and other corruption.

[24] Scott Sigmund Gartner, Strategic Assessment in War (New Haven, CT: Yale University Press, 1997), 1-5.

[25] Ibid., 148-9.

[26] For other considerations that impact the ability to evaluate effects see U. S. Joint Forces Command, "A Concept Framework for Effects-based Operations," 9-10.

[27] Cascading effects result from the synergy generated from a combination of effects smaller in scale. Cascading effects ripple through the system usually from a higher to lower level of war. See U. S. Joint Forces Command, "A Concept Framework for Effects-based Operations," 9.

[28] This phenomenon is referred to as operating inside the enemy's Observe, Orient, Decide, Act (OODA) loop. See Grant T. Hammond, The Mind of War, John Boyd and American Security (Washington, D.C.: Smithsonian Institution Press, 2001), 141-142.

[29] Geoffrey Wawro, The Austro-Prussian War, Austria's War with Prussia and Italy in 1866 (New York: Cambridge University Press, 1996), 36-37.

[30] Ibid., 41.

[31] Richard Smoke, War: Controlling Escalation (Cambridge, MA: Harvard University Press, 1977), 80-146.

[32] Arden Bucholz, Moltke and the German Wars, 1864-1871 (PALGRAVE, 2001), 104-105.

[33] Wawro, 42.

[34] Bucholz, 137.

[35] Wawro, 276.

[36] Smoke, 142.

[37] Donald H. Rumsfeld, Press Conference, Arlington, VA: Pentagon, 15 November 2001.

[38] Eric Schmitt, "4 Commanders Say They Want Civilian Agents," New York Times, 20 November 2001, sec. A, p.1.

[39] Office of the Secretary of Defense, Quadrennial Defense Review Report (Washington, D.C.: U.S. Government Printing Office, 2001), 34-35.

[40] Jim Garamone, "Wolfowitz Shares Special Forces' Afghanistan Dispatches," 15 November 2001; available from <http://www.defenselink.mil/news/Nov2001/n11152001_200111155.html>; Internet; accessed 4 March 2002.

[41] The interagency element would not be effective without support from the National Security Council. The National Security Council is typically the focal point for coordinating government actions in the event of a national security crisis. The Chairman of the Joint Chiefs of Staff serves as a statutory advisor and the Vice-Chairman serves on the Deputies Committee. In these capacities, they coordinate the efforts of the warfighting commander with the rest of the interagency. Given the Chairman and Vice-Chairman's scope of responsibility however, it is reasonable to assume they cannot always conduct the necessary coordination for effects-based operations. The Defense Strategy, Force Structure, and Planning Policy Coordination Committee should serve as the link between the interagency element and the National Security Council. A senior Department of Defense official chairs the committee and answers to the Secretary of Defense. During day-to-day operations, the interagency element would elevate issues requiring high-level attention to the committee through the Joint Staff. During crises, the Policy Coordinating Committee would support the interagency element in

theater. Because crisis management is not a normal role for the committees, the regional commander's Deputy Director for Plans and Policy should augment the committee. His knowledge of the war plans and familiarity with the region's political issues would facilitate coordination between the Policy Coordinating Committee and the deployed interagency element. See George W. Bush, "National Security Presidential Directive, Subject: Organization of the National Security Council," memorandum for the Vice President et al, Washington D.C., 13 February 2001.

[42] U. S. Joint Forces Command, "A Concept Framework for Effects-based Operations," ii.

[43] Williamson Murray, "Reflections on the Combined Bomber Offensive," Militärgeschichtliche Mitteilungen 51 (1992): 94.

[44] Edward C. Mann III, Gary Endersby, and Thomas R. Searle, Dominant Effects: Effects Based Joint Operations, Airpower Research Institute Paper, (Maxwell AFB: Air University, 2001), 2.

[45] Joint Force Commanders will typically form Joint Targeting and Coordination Boards to review target information, develop targeting guidance and priorities, and prepare and refine joint target lists. See Chairman of the Joint Chiefs of Staff, Doctrine for Joint Fire Support, Joint Publication 3-09, (Washington, D.C.: U.S. Government Printing Office, 12 May 1998), I-4.

[46] Concept for effects-based missions based on: Robert Schmidle, "Dominant Maneuver Operational Concept," briefing slides with scripted commentary, Pentagon, Joint Staff J-8, 23 October 2001.

[47] Timothy J. Sakulich, Precision Engagement at the Strategic Level of War: Guiding Promise or Wishful Thinking? Air Force Fellows Program, (Maxwell AFB: Air University, April 2001),14.

[48] Phillip S. Meilinger, "Trenchard and "morale bombing": The evolution of Royal Air Force doctrine before World War II," The Journal of Military History 60 (April 1996) [database on-line]; available from UMI ProQuest, Bell & Howell; accessed 23 January 2002.

[49] Murray, 74.

[50] Meilinger.

[51] Murray, 81.

[52] Ibid.

[53] Williamson Murray, "Strategic Bombing, The British, American and German experiences," in Military Innovation in the Interwar Period, ed. Williamson Murray and Allan R. Millett, (New York: Cambridge University Press, 1996), 143.

[54] Joint Publication 3.0, III-10-11.

[55] "The Army VISION: People, Readiness, and Transformation," available from <http://www.army.mil/vision/default.htm>; Internet; accessed 17 January 2002.

[56] "Global Vigilance, Reach & Power, America's Air Force Vision 2020," available from <http://www.af.mil/vision>; Internet; accessed on 9 March 2002.

[57] David A. Deptula, "Air Force Transformation, Past, Present and Future," available from <http://www.airpower.maxwell.af.mil/airchronicles/apj/apj01/fal01/phifal01.html>; Internet; accessed on 17 January 2002.

[58] These assertions are based on statements by three Air Force generals speaking in a non-attribution environment.

[59] Airpower is limited when certain target sets are excluded or the attack intensity is limited by the number of platforms or ordnance made available. Gradualism is pre-planned increases in intensity of air attacks over time in response to enemy actions. The intensity may be in the form of timing, i.e. more frequent attacks or in target types. For example moving from targets with little civilian impact to those with more potential to produce collateral damage.

[60] Hosmer, 128-129.

[61] Dr. Phillip Meilinger helped me think through the concept of gradualism following a seminar he led on 17 December 2001 at the U.S. Army War College as part of the Advanced Strategic Arts Program curriculum.

[62] Air Force Doctrine Document 2, 86-93.

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