USAWC STRATEGY RESEARCH PROJECT

CENTER OF GRAVITY DETERMINATION IN THE GLOBAL WAR ON TERRORISM

by

Lieutenant Colonel Joe E. Ethridge, Jr.
United States Army

Professor Robert C. Coon
Project Advisor

This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.

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

Report Documentation Page

Form Approved
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE **03 MAY 2004**	2. REPORT TYPE	3. DATES COVERED **-**
4. TITLE AND SUBTITLE **Center of Gravity Determination in the Global War on Terrorism**		5a. CONTRACT NUMBER
		5b. GRANT NUMBER
		5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S) **Joe Ethridge**		5d. PROJECT NUMBER
		5e. TASK NUMBER
		5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **U.S. Army War College,Carlisle Barracks,Carlisle,PA,17013-5050**		8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)
12. DISTRIBUTION/AVAILABILITY STATEMENT **Approved for public release; distribution unlimited**		
13. SUPPLEMENTARY NOTES		
14. ABSTRACT **See attached file.**		
15. SUBJECT TERMS		

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**		**30**	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18

ABSTRACT

AUTHOR: LTC Joe E. Ethridge, Jr.

TITLE: CENTER OF GRAVITY DETERMINATION IN THE GLOBAL WAR ON TERRORISM

FORMAT: Strategy Research Project

DATE: 4 March 2004 PAGES: 30 CLASSIFICATION: Unclassified

Current United States Armed Forces doctrine for campaign planning cites "center of gravity identification" as "the most important task confronting campaign planners." The President of the United States declared war on terrorists and governments that support terrorists on 21 September 2001. The primary target of this declaration, the terrorist organization al Qaeda that claimed responsibility for the attacks of 11 September 2001, continues to exist despite the two-year joint, combined, and interagency campaign to destroy it. The purpose of this paper is to attempt to properly identify al Qaeda's strategic center of gravity, supporting critical capabilities and critical requirements, and the resulting critical vulnerabilities. Further, it is to provide a template for the application of the center of gravity determination analytical tool to other terrorist organizations that may threaten the United States or our allies.

TABLE OF CONTENTS

ABSTRACT ..... **III**

LIST OF ILLUSTRATIONS ..... **VII**

CENTER OF GRAVITY DETERMINATION IN THE GLOBAL WAR ON TERRORISM **1**

- **DEFINING THE TASK** **1**
- **THE CENTER OF GRAVITY DETERMINATION PROCESS** **2**
- **AL QAEDA'S CENTER OF GRAVITY** **5**
- **CRITICAL CAPABILITIES AND CRITICAL REQUIREMENTS** **5**
- CRITICAL CAPABILITY - STATE SUPPORT 6
- CRITICAL CAPABILITY - POPULAR SUPPORT 8
- CRITICAL CAPABILITY - GLOBAL REACH AND GLOBAL PROTECTION 11
- CRITICAL CAPABILITY - FUNDS 12
- **SUMMARY** **15**
- **CONCLUSION** **16**

ENDNOTES **17**

BIBLIOGRAPHY **21**

LIST OF ILLUSTRATIONS

FIGURE 1 TOMLIN'S "CENTER OF GRAVITY THROUGH REVERSE ENGINEERING" 4

FIGURE 2 AL QAEDA THROUGH REVERSE ENGINEERING……..15

CENTER OF GRAVITY DETERMINATION IN THE GLOBAL WAR ON TERRORISM

The title of this paper is misleading. It does not directly address the "Global War on Terrorism" as defined by President Bush in the *National Strategy for Combating Terrorism* . In that document, President Bush declares war on terrorism, "premeditated, politically motivated violence perpetrated against noncombatant targets by sub-national groups or clandestine agents," as a single entity. [1] By this definition, groups of Shiite Muslims or Kurds who might have risen against the Saddam Hussein regime to conduct the only types of combat operations available to them within their limited means and given their comparative weakness, such as assassinations, ambushes and bombings of key government individuals and facilities, would be labeled as terrorists. Saddam Hussein, however, as the leader of a nation-state, could not be named as a terrorist under this definition, regardless of how many people he killed.[2]

Dr. Jeffrey Record, in his widely read and discussed Strategic Studies Institute monograph, *Bounding the Global War on Terrorism* , identified a number of more immediate problems with our national strategy concerning terrorism. Foremost, he clearly identified the danger of a "conflated threat," meaning that the U.S. has too widely defined the threat of terrorism facing the country. In Dr. Record's words, "terrorism is a recourse of the politically desperate and militarily helpless, and, as such, it is hardly going to disappear." Put simply, terrorism will never be totally eradicated. There will always be individuals or groups that resort to violence as a political means. The United States would be better suited to focus its strategy on the terrorist groups that pose a direct threat to the homeland or other vital national interests.[3] Even with this more focused strategy, it would be no more possible to identify a single center of gravity for these disparate terrorists groups than it would be to determine a single strategic center of gravity for all the nations and their military forces who may potentially oppose the U.S. by studying only one.

This paper does not attempt the impossible, identifying the center of gravity and critical vulnerabilities of terrorism as a single entity. Instead, its focus is the global war on the terrorist organization al Qaeda. Specifically, the purpose of this paper is to attempt to properly identify al Qaeda's strategic center of gravity, supporting critical capabilities and critical requirements, and the resulting critical vulnerabilities.

DEFINING THE TASK

What is a center of gravity? Why is it important? Why is a center of gravity so hard to determine? Does the concept of center of gravity apply to combating terrorism if it is a "military operation other than war" (MOOTW) situation? Clausewitz defined the enemy's center of

gravity as ”the hub of all power and movement, on which everything depends.”[4] Current United States Armed Forces doctrine for campaign planning cites center of gravity determination as being “absolutely essential.”[5] In spite of this strong doctrinal statement of support and Clausewitz’ straightforward statement of the concept, identifying the enemy center of gravity and supporting components can be very difficult.

The experiences and observations that Clausewitz applied to his writing of *On War* were of wars between European nation-states. Clausewitz could not have envisioned the complexity and ambiguity of the world we live in today. To maintain the intimate, insider level of knowledge required to make an accurate center of gravity determination, seen through the cultural lenses of a potential adversary, is a significant challenge. Current U.S. doctrine, Joint Publication 3.0, addresses this understanding of the complexity of the issue with the statement that “identification of adversary Centers of Gravity requires detailed knowledge of how opponents organize, fight, and make decisions as well as their physical and psychological strengths and weaknesses.”[6]

The non-state identity of terrorist groups adds to the confusion. Current U.S. doctrine defines center of gravity as “those characteristics, capabilities, or sources of power from which a military force derives its freedom of action, physical strength, or will to fight.”[7] This modern definition is clearly compatible with Clausewitz’ theory and military confrontations with the armed forces of a nation-state. Although there are dissenters, experts in this area of study contend that center of gravity analytical tool, with minor adjustment and multidisciplinary application, is relevant to operations against terrorist organizations and other MOOTW scenarios.

THE CENTER OF GRAVITY DETERMINATION PROCESS

Given the clearly defined task to determine the center of gravity and critical vulnerabilities of al Qaeda, the proper tools must be gathered. The 25 January 2002 edition of Joint Publication 5-00.1, *Joint Doctrine for Campaign Planning*, was a major step forward in laying the groundwork for a systems approach to center of gravity determination, critical vulnerability identification, and establishing the relationships between the two.

The basic doctrine concerning center of gravity determination has been studied and argued by strategists, planners, and operators throughout the U.S. Department of Defense. Dr. Joe Strange of the Marine Corps War College and COL Henry A. Tomlin of the U.S. Army War College provide functional models for a systems approach of center of gravity determination. Dr. Strange’s contribution is the Center of Gravity – Critical Capabilities – Critical Requirements – Critical Vulnerabilities (CG-CC-CR-CV) Concept, which establishes a building block approach

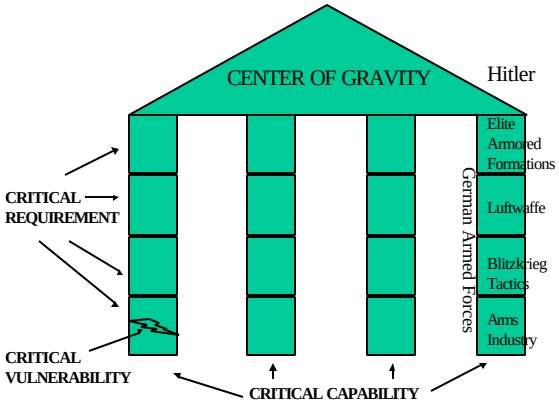
for identifying and attacking an adversary's strategic and operational centers of gravity. [8] He defines the components as follows:

- Centers of Gravity: Primary sources of moral or physical strength, power and resistance.
- Critical Capabilities: Primary abilities which merits a Center of Gravity to be identified as such in the context of a given scenario, situation or mission.
- Critical Requirements: Essential conditions, resources and means for a Critical Capability to be fully operative.
- Critical Vulnerabilities: Critical Requirements, or components thereof, which are deficient, or vulnerable to neutralization, interdiction or attack in a manner achieving decisive results – the smaller the resources and efforts applied and the smaller the risk and cost, the better.[9]

COL Tomlin expanded on this building block concept in order to make the system and its relationships easier to visualize. He illustrates the relationships of the system of systems described by Dr. Strange through employment of the structure of an ancient Greek temple. The gabled roof represents the center of gravity, supported by columns (critical capabilities), and with the individual columns composed of a system of building blocks (critical requirements).[10] COL Tomlin then provided straightforward historical examples to enable better visualization of the relationships of the center of gravity to the critical capabilities, and then to the critical requirements.

Using the historical example of Hitler's Germany in the days leading up to World War II, FIGURE 1 partially illustrates COL Tomlin's concept of "center of gravity determination through reverse engineering." Adolph Hitler is identified as the strategic center of gravity. The supporting critical capabilities, the primary abilities which merit a center of gravity to be identified, are designated as the will of the people, the Axis alliance, access to strategic resources, and the German armed forces. Focusing on the German armed forces critical capability, there are essential subcomponents required to make this capability fully operative. An analyst in 1940 may have identified the elite armored formations, the Luftwaffe, Blitzkrieg tactics, and the German arms industry as these indispensable components, or critical requirements.[11]

FIGURE 1. Tomlin's "Center of Gravity Through Reverse Engineeri ng"



Continuing with this same historical example, Allied planners would have found that attacking Hitler directly was a very difficult task. The Allied armed forces had been pushed off the European continent by the end of May 1940, and precision-guided munitions, as we know them today, had not yet been dreamed of. Likewise, a direct attack on the critical capability provided by the German armed forces was beyond the means available to Allied strategists early in the war. However, Allied planners did envision critical vulnerabilities in the vaunted German armed forces, an arms industry susceptible to strategic bombing and a Luftwaffe designed for tactical support of ground operations. Later in the war, the Allies would also take advantage of the severe lack of tactical mobility of the German infantry divisions that were key enablers for the employment of the blitzkrieg tactics critical requirement.

This example is not to say that successfully attacking a single critical capability would defeat the center of gravity. If this were the case, the center of gravity determination was probably wrong.[12] The center of gravity, as the "source of power," is unlikely to be vulnerable to a strike against one lone component. The model is used only to clarify the relationships between the center of gravity, a single critical capability, and its supporting critical requirements, in isolation, in order to ensure reader understanding of the model.

AL QAEDA'S CENTER OF GRAVITY

It is becoming increasingly popular to label "Islamic Fundamentalism" as the center of gravity in the global war on terror.[13] This may be true if you view every Islamic terrorist group that could possibly target the U.S. or U.S. interests as a single entity. However, in the current war against Al Qaeda, the organization responsible for 9/11 and the rightful focus of U.S. attention, the center of gravity is Osama bin Laden and the key leaders closest to him that possess the knowledge, will, and skills to continue operations in his absence. True, there are other potential Islamic terrorist groups that may have a desire to attack the U.S., but only al Qaeda has made the giant step to directly confront the U.S. by attacking the homeland.

Naming bin Laden as the center of gravity of al Qaeda should not come as a surprise to any student of the Army War College. Readings from the standard curriculum evidence this determination. In *Center of Gravity: Determination, Analysis, and Application* , Giles and Galvin propose a scientific model for identification of the center of gravity. They assert, "militant groups or clans are likely to have their *group leader* as the center of gravity."[14] Dr. Joe Strange of the Marine Corps War College, in his widely read *Centers of Gravity and Critical Vulnerabilities: Building on the Clausewitzian Foundation So That We Can All Speak the Same Language* , frequently argues individual leaders of regimes as likely centers of gravity. From his educated perspective, Saddam Hussein, Ho Chi Minh, General Robert E. Lee, and Adolph Hitler were all named as centers of gravity. [15]

Bin Laden is clearly a source of strength and power for the al Qaeda rank and file, and he has proven to be very difficult to attack directly. Interestingly, Dr. Strange theorizes that identifying the center of gravity is the simple part of the center of gravity determination process, as it should be somewhat obvious.[16] The challenge is in properly developing the supporting critical capabilities and critical requirements in order to identify the critical weaknesses, that is the system as a whole.

CRITICAL CAPABILITIES AND CRITICAL REQUIREMENTS

Given the reverse engineering framework for center of gravity development and the identification of Osama bin Laden as the center of gravity, the supporting critical capabilities that enable al Qaeda must be established. The critical capabilities are, according to U.S. *Joint Doctrine for Campaign Planning*, "those adversary capabilities that are considered crucial enablers for the adversary's center of gravity to function as such, and are essential to the accomplishment of the adversary's assumed objective(s)."[17] Bin Laden has stated his objective to "unite all Muslims and establish a government which follows the rule of the Caliphs." This

statement has been expanded and clarified by an associate to mean, "to create an empire of all the world's one billion Muslims, ruled by a single leader."[18] The assumption is that Osama bin Laden intends to be that single leader. With Osama bin Laden identified as the center of gravity of al Qaeda, and with a view of the objective, the following are identified as the critical capabilities that enable bin Laden to function as such:

- Ability to gain and maintain state support
- Ability to gain and maintain popular support
- Ability to employ his forces with global reach and global security
- Ability to gain and provide funding for operations

Students of national security strategy will immediately recognize the rough, but direct, relationship between the "DIME" (Diplomatic, Informational, Military, and Economic) model of instruments of national power and the critical capabilities of the non-state organization al Qaeda. This was not an intended outcome, but a logical conclusion. The state support, popular support, and funding capabilities' correlations with the diplomatic, informational, and economic instruments of power, respectively, are obvious. The global reach and global security capability's correlation may not be so immediately obvious, but its role in projecting power and protecting the force provide for a military instrument association.

In addition to fully describing each of these critical capabilities in the following pages, each capability is broken down into its component critical requirements. The critical requirements are the "essential conditions, resources, and means for a critical capability to be fully operational."[19] The purpose of this exercise is to better understand the system, and its components, in order to properly identify the critical vulnerabilities that will allow "interdiction or attack in a manner achieving decisive or significant results, disproportionate to the resources applied."[20]

CRITICAL CAPABILITY - STATE SUPPORT

Although al Qaeda is a non-state entity, gaining and maintaining state support is a critical capability in its pursuit of its objectives. Michael Ledeen, in *The War Against the Terror Masters,* summarizes the importance with the statement, "all of the major terrorist organizations would be crippled without state support."[21] The critical requirements of this state support capability are:

- weapons,
- safe havens and training camps,
- intelligence, and

- identification and travel documents.

State support is roughly equivalent to the diplomatic instrument of power, as applied by strategists.

It is interesting to note that while studying a Clausewitzian theory, center of gravity, there are clear parallels between the current situation and that which Clausewitz wrote about from his observations of the French revolution and the rise of Napoleon's armies and tactics. The monarchies of Western Europe were concerned by the revolution and the potential of their loss of power. In the current situation in the Middle East, the rulers of Saudi Arabia, Sudan, Afghanistan, and other countries who have supported al Qaeda are not at all enthused by the prospects of a democratic revolution in the Middle East.

Weapons of mass destruction procurement by al Qaeda, the nightmare of the U.S. government, would almost certainly be dependent upon the complicity and support of a state. Bin Laden's failed attempts to gain enriched uranium are well documented.[22] His efforts to gain state support for conventional weapons, however, have been much more successful. The U.S. and Saudi Arabia were the original suppliers of al Qaeda in the Afghanistan war against the Soviet Union. When al Qaeda moved to Sudan in 1992 to establish operations, bin Laden is reported to have made arms purchases from China and Iran, to include a single purchase for as much as $15 million.[23]

Lack of an arms industry is both an advantage and a vulnerability of al Qaeda. If al Qaeda were dependent on its own resources for the production of arms, the factories could be readily targeted. However, that is not the case. Small arms and ammunition are plentiful in the Middle East and Africa, particularly if you have access to funding on the level of bin Laden and al Qaeda. That said, they are constantly dependent on outsiders for supply. Territory lost for their use as a safe haven, as is much of Afghanistan, means permanent loss of the bulk of the weapons and ammunition stored there. While these stocks are readily replaceable, the arms deals to replace stocks or to build-up for future operations are opportunities for compromise. Al Qaeda can never procure arms without assuming some risk that the agents involved in the trade have been "turned" by an intelligence service, which could constitute a critical vulnerability.

Bin Laden began his career as a "Jihadist" by financing and building depots, camps and roads along the Afghanistan-Pakistan border in the early 1980's. In 1986, he built the tunnel complex and the first training camp for his own Afghan Arabs in Khost, Afghanistan.[24] Upon his expulsion from Saudi Arabia in 1991, he established a base of operations in Sudan and immediately set about the business of building training camps for his followers. Bin Laden

understands the value and the requirement for safe havens and training camps to reconstitute his forces and train new personnel.

Safe havens and training camps, or any fixed structures, have proven to be a vulnerability of the al Qaeda organization. Ejected from both the Sudan (under diplomatic pressure) and from Afghanistan (by force), Al Qaeda is believed to be training in Iran, Lebanon, and Africa. Under the current U.S. policy for combating terrorism, the sponsoring states share significant risks with Al Qaeda.[25]

Bin Laden's access to state intelligence sources is, at least, partially documented. The Kingdom of Saudi Arabia, despite officially expelling him in 1991, has never cut ties with Osama bin Laden. Prince Turki Ibn Faisal Ibn Abdelaziz, the chief of the Saudi intelligence service, met and befriended Osama bin Laden in 1978.[26] This relationship was sustained for two decades. Another example of bin Laden's direct access to a state's intelligence services is the personal relationship he developed with Bashkim Gazidede, the head of the Albanian Secret Service, in 1994.[27] More recently, Iran has been pointed out as a source of intelligence for bin Laden. Again, the vulnerability is the balance of loyalty and risk.

In 1991, Saudi Arabia expelled bin Laden due to his attempts to destabilize the government and smuggle weapons across the border from Yemen. He settled in Khartoum, Sudan and began the process of reorganizing al Qaeda. Sudan was a key enabler for this process by abandoning visa requirements for Arabs, and "actively encouraging Islamic militants from around the world to live within the safety of its vast borders."[28] In 1994, bin Laden "turned his attention to Albania, an impoverished country home to militant and oppressed Muslims, lax immigration controls, an incompetent police force prone to corruption, and political leaders eager for bribes: the perfect European military base for al Qaeda."[29]

The ability to gain official travel documents and identification enables al Qaeda operatives to move freely around the globe on modern transportation modes. All that is needed to acquire these documents is a corrupt government. Individuals are unlikely to be able to provide the quantity of desired documents. States can provide the needed quantities, but not without al Qaeda assuming some level of vulnerability. The state will, in the end, act in its best interests. Convinced of the dangers of complicity with bin Laden, a state could compromise key members of al Qaeda.

CRITICAL CAPABILITY - POPULAR SUPPORT

Underground organizations require mass support and Osama bin Laden is the face of militant Islamism.[30] He is one of the most recognized men in the world. Jihad, Holy War and

warriors are the words we have heard in bin Laden's taped messages to describe al Qaeda's terrorist acts and actors. Susanne Karlstedt explains the importance of this language in that "terrorists need positive legitimizations that are essential for the symbolic significance of their actions, add to their mobilizing impact, and define their identity."[31] Bin Laden and al Qaeda are idolized by many in the Islamic world for their defiance of the United States. The critical requirements, the "essential conditions, resources and means,"[32] for Osama bin Laden to legitimize his actions and to gain and maintain popular support for al Qaeda are:

- Islamic Fundamentalism,
- tyrannical regimes,
- Saudi Arabia, and
- Al Qaeda's visible successes against Russia and the U.S.

Militant Islamic fundamentalists do not believe that capitalism, democracy and religious freedom are compatible with their beliefs. Although the fundamentalists comprise only a small percentage of the more than a billion people who follow the Islamic faith, this group is seen by many as the greatest threat to the United States' security. Simon Reeve, in *The New Jackals*, compares the Islamic fundamentalists with the communists that confronted the free world during the Cold War. He points out that "Islam is the world's only political religion: it makes no distinction between religion and state, and covers every aspect of life." Further, he states "communists and Islamic terrorists are both…determined - at any cost – to destroy the Western way of life."[33]

Reeve's comments must be taken in context; again, he is referring to the minority, the militant fundamentalists, rather than the majority of the followers of Islam. The danger is bin Laden, and others like him, are intent on recruiting more people into the roles of the militants to provide both support and foot soldiers to al Qaeda. In short, the fundamentalists blame a declining position of the Muslim world, in comparison to the West, on the Muslim's failure to follow the strictest interpretations of Islam and the influence of the "infidels" (non-believers). Bin Laden capitalizes upon this line of thought by adding "the only Muslims who can defeat infidels are those who derive their strength from Allah."[34]

The tyrannical regimes of the Middle East contribute greatly to creating the strong base of popular support for bin Laden. In Robert Malley's words, "in so much of the Muslim world, the absence of democracy has caused a vacuum that Islamic militants were alone able to fill. While governments silenced all dissident political speech, Islam enjoyed the use of invioble space (the mosque), a tribune (the preacher's pulpit) and a sacred public language (religious discourse).

Forms of public discontent thus have tended to take on religious accents."[35] The current situation in Iraq is a threat to the critical requirement of tyrannical regimes in the Middle East. Should democracy flourish there, it is possible that a revolution of democratic rights and freedoms could begin in that region. Many believe, as Ledeen states so strongly in *The War Against the Terror Masters*, that the people of Iran are ripe for a revolution and "the regime is visibly nervous."[36]

Saudi Arabia, a source of state support and a tyrannical regime, plays such a significant role in the attainment of popular support that it is a critical requirement in itself. Corbin summarizes the creation of these conditions with the statement, "ever since forming an alliance with the religious reformer Mohamed Ibn Abdul Wahhab, the founder of Wahhabism, in 1744, the Saudi royal family has relied on inspiring religious fervor to consolidate their power."[37] Saudi Arabia is a source of popular support for bin Laden and al Qaeda for three reasons: it is the home of Wahhabism; the state supports terrorism while thumbing its nose at the west, due to western dependence on oil: and, because of U.S. presence in the home of the most holy of Islamic religious sites, Mecca and Medina. Bin Laden was energized by all three, and continues to use these elements as a means to stimulate support in his home country and throughout the Middle East.

The critical requirement, Saudi Arabia, is vulnerable, but not in the short term. The U.S., and much of the world, is dependent upon Saudi oil. Saudi Arabia cannot be directly attacked, nor is it likely the repressive Saudi royal family will step down. The U.S. has worked to minimize its military footprint in Saudi Arabia, moving its permanent installations to other countries in the region. However, its outstanding facilities are frequently necessary to support operations. The long-term vulnerability is decreased dependence on Saudi oil, which may be possible if the anticipated oil bonanza in Africa is realized or energy sources other than fossil fuels are leveraged.

Jane Corbin, veteran BBC reporter, upon her completion of three years of study of al Qaeda points out that "the pride, and the notion of invincibility, aroused in the hearts of many Muslims by the defeat of the Soviets, cannot be underestimated."[38] Bin Laden has also claimed al Qaeda participation in the attacks on the U.S. Armed Forces in Mogadishu during Operation Restore Hope that resulted in the death of 18 U.S. servicemen and the withdrawal of U.S. forces in Somalia.[39] He can also parade the successes in Yemen, Saudi Arabia, the U.S. Embassies in Africa, and the acts of 9/11 as proof of his ability to defeat the U.S.

Critical vulnerabilities to the "visible success" requirement include equally visible failure, lack of visible success and unintended consequences. In the eyes of many, almost certainly to

include Islamists who have supported al Qaeda, the Taliban's war against the U.S. in Afghanistan was a decisive defeat of bin Laden. Carrying through with that same example, bin Laden has been slow to organize a reprisal for that defeat. Finally, the Taliban, an Islamist group allied with al Qaeda, lost the most in the exchange while bin Laden escaped to fight another day. This is inconsistent with the persona of the Jihadist. Should he not have fought to the death in Afghanistan?

CRITICAL CAPABILITY - GLOBAL REACH AND GLOBAL PROTECTION

Global reach and global protection is the "military instrument of power" of Osama bin Laden and al Qaeda. Al Qaeda has struck at the U.S. in Saudi Arabia, Yemen, Somalia, Africa, New York, and Washington D.C. Its tentacles have spread to the Philippines, Indonesia, Europe, and the former Soviet Union. The critical requirements necessary for bin Laden's ability to employ his forces with global reach and protection are:

- freedom of movement,
- cellular organization,
- global communications, and
- its non-state identity.

Freedom of movement, partially enabled by the official travel documents discussed previously, is a critical requirement in al Qaeda's ability to both operate and protect its forces globally. More significantly, since the end of the Cold War, nations from many regions around the world have relaxed border controls. Finally, there are also regions where border controls do not exist because the responsible governments do not have the means to employ such controls.

Modern terrorist organizations operate in a cellular, or compartmentalized manner, for security purposes. It is likely that the September 2001 al Qaeda operatives, pilots, trainers, planners, financiers, were unaware of the identities or the roles of the others involved outside of their immediate cells. Consequently, capture of one would not likely impact on the safety or success of the others involved in the operation. Interestingly, the very nature of the cellular organization provides great evidence of the importance, even eminence, of the central cell. Only the center, or headquarters, cell would have knowledge of the "big picture," that is the overall design and concept of operations of the worker or soldier cells.

Cell organizations are not invulnerable, but the individual cell vulnerabilities have little impact on the operation and security of the system. Conversely, successful decapitation,

probably through means other than tracking up the chain of the cellular structure, of the central cell, the controlling entity, would have profound impact on the entire cellular organization.

Globalization has opened communications for international business and terrorism, alike. Al Qaeda has access to the internet, satellite and cellular phones, and any other communications mode available to the general public. The organization even introduced an encyclopedia, *The Encyclopedia of the Afghan Jihad*, to explain the basics of terror, distributed in CD-ROM.[40]

Although commercial encryption is available for all of the common, off the shelf communications devices available to al Qaeda, open communications means do present a critical vulnerability. If standard commercial communications were secure, governments and military forces would not invest so heavily in "secure" communications means. Prior to 9/11, before al Qaeda was a focus of western intelligence agencies, these communications means were largely secure. Successful interception requires a narrowly focused effort. The greater the emphasis placed on al Qaeda, the greater the chances of exploitation.

Lack of a state identity is a very useful and strong source of protection for al Qaeda. Were the organization overtly state sponsored, the U.S. and its allies could take aggressive action against that state and al Qaeda. By working from the shadows, al Qaeda can minimize that threat, as international law precludes the introduction of security forces into a foreign country without consent.[41] Even with the assistance and consent of a foreign partner in pursuing a member of al Qaeda, bringing the individual to justice is a complex process. Philip Heymann, in *Terrorism and America*, summarizes the legal complexity with, "the trial of a terrorist must bring four things together in one place: an applicable statutory prohibition, a willingness to prosecute, the necessary evidence, and the suspect."[42] Historically, it has been extremely difficult to bring all four of these elements together. However, the growing threat of al Qaeda is bonding the world at a rapid pace and much work is being put into establishing the legal procedures to successfully prosecute terrorists.

CRITICAL CAPABILITY - FUNDS

Bin Laden's ability to gain and provide funding for al Qaeda recruiting, training, and operations is a critical capability. Bin Laden was born into great wealth and has proven to be a skilled businessman in securing resources for al Qaeda. He was dubbed the "Banker of the Jihad"[43] for the premier role as a financier (rather than soldier) that he played in the Afghan war against the Soviet Union in Afghanistan. The corresponding critical requirements, in Dr.

Strange's words "the essential conditions, resources and means,"[44] for funding al Qaeda can be summarized as:

- the personal wealth and legitimate business enterprises of Osama bin Laden,
- organized crime,
- cover organizations / NGOs, and
- the modern international banking system.

Upon his father's death in Saudi Arabia, Osama bin Laden inherited a sum of money approximating $450-500 million. Between 1986 and 1989, the United States and Saudi Arabia provided $500 million per year to the mujaheddin fighting the Soviet Union in Afghanistan.[45] In 1991, bin Laden was expelled from Saudi Arabia because of his complicity in a plot to destabilize the government. He moved his family to Sudan, where he continued to train terrorists and displayed great skills as a businessman. He invested heavily in venture banking and Sudan's most important exports. Simon Reeve, in *The New Jackals*, relates that "it is still possible that every time someone buys an American softdrink, they are helping to fill Osama bin Laden's coffers," because of bin Laden's majority ownership of the largest gum arabic (the ingredient that keeps the ingredients from settling to the bottom of the can) producing company in the world.[46]

Bin Laden, the businessman, has not limited his acquisition of funding to legitimate enterprises. Bin Laden and al Qaeda profit from an Afghan drug trade that can bring in up to $10 billion per year. Bin Laden's share is believed to be as high as 10% of this figure, due to his role in organizing the distribution and organizing money laundering with Russian and Chechen mafia groups.[47] His drug operations have spread to other states, to include Madagascar. Originally used as a distribution hub, that country now produces large quantities of cannabis, 150 tons in 1996, of which bin Laden is believed to be a major beneficiary. [48] Additionally, on the African continent, several international sources have reported Al Qaeda to be involved in the marketing of illegal gems and diamonds from the Democratic Republic of Congo, Burkino Faso, and Liberia.[49]

In *Dollars for Terror*, Richard Labeviere, who spent four years researching the financial network of al Qaeda, sums up the situation confronting investigators with the statement that Osama bin Laden "takes full advantage of all the banking industry's secrecy."[50] He describes in detail the linkages to the bin Laden family business holdings, the Bin Laden Organization, to al Qaeda. Among the holdings is "the Saudi Investment Company (Sico), whose head office is in

Geneva" with "branches in the other European countries, the United States, the Arab countries, and in several tax havens including the Bahamas."[51]

Labeviere also establishes clear associations with al Qaeda to Islamic nongovernmental organizations (NGO) who both spread destabilizing fundamentalist teachings of Islam and cover the financing of terrorist operations. He points out, for example, that bin Laden's brother-in-law is a manager for the International Islamic Relief organization (IIRO), a NGO that is employed as a screen for the financing of several Philippine Islamist organizations, to include the terrorist group Abu Sayyaf.[52] Similar connections have been made to NGOs operating in the Balkans and Africa. In addition to the organizations that he has direct ties to or controlling relationship with, Reeve indicates that "Bin Laden has also become a powerful figure within the ranks of international Islamists, someone who thousands of militants turned to for leadership. So if he needed more money he had ready access to the huge financial reserves of the world's numerous Islamist groups, estimated variously at between $5-$16 billion."[53]

Although made difficult by the complexity and secrecy of the international banking system, al Qaeda's funding is vulnerable. This vulnerability is evidenced by the number of books available claiming knowledge of many facets of bin Laden's finances. The U.S. has a poor record in fighting drug trade, but in making that fight they have developed many systems for tracking the flow of money. Additionally, every loss of a safe haven brings about a corresponding loss in availability of funds, as in Afghanistan and Sudan. Finally, the constant seeking of growth and additional funds greatly increases the opportunities for a failure in the security system that protects the funds.

SUMMARY

FIGURE 2. Al Qaeda Through "Reverse Engineering"

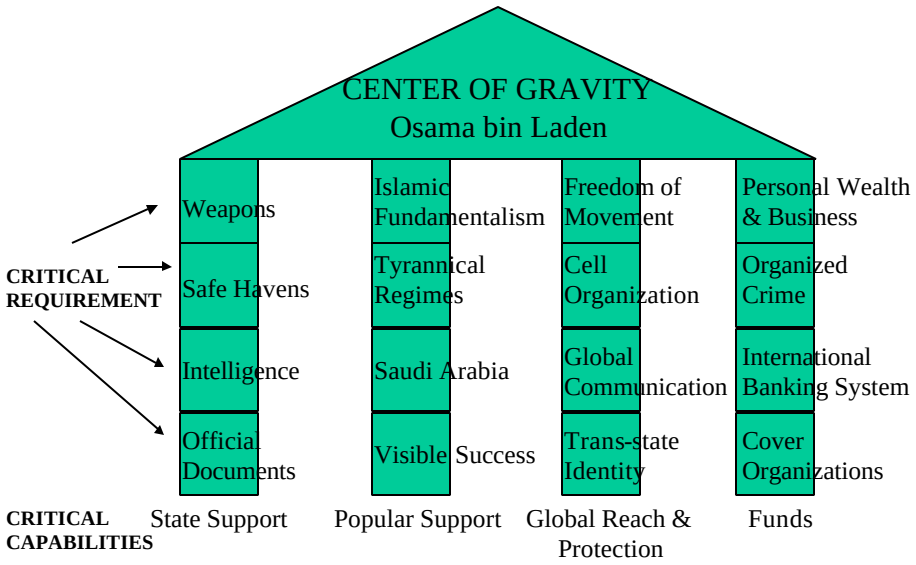


FIGURE 2, above, summarizes the center of gravity and supporting critical capabilities and requirements employing Tomlin's model. A problem with the "reverse engineering" model is that it implies that the critical capabilities, with subordinate systems of critical requirements, stand or operate independently. This is a common malady of models that break complex systems into components in order to study the components in isolation. The implication of independence is not intended, for the center of gravity and its components is a true system of systems.

Viewed from that systems perspective, readers should notice the tension between the identified critical requirements that may deepen existing or create new critical vulnerabilities. Al Qaeda requires state support for weapons, safe havens, and intelligence, however the cost to the state, as evidenced in Afghanistan, could be judged too great to continue the support. This situation could lead to compromise or, at a minimum, loss of that state support. Another example is the requirement to continue to display visible successes against the U.S., which is likely to come at a much higher cost than in the case of 9/11 where the nation was caught very much unprepared. Finally, with bin Laden's objective in mind, al Qaeda is constantly seeking growth. This stance is completely contradictory to the state support and global reach/protection

critical capabilities, which require cover, covert operations, and secrecy. This quest for growth may be al Qaeda's greatest vulnerability.

CONCLUSION

The U.S. Government should not continue its improbable, even defeatist, approach to combating terrorism as a single entity. Had the U.S. been required to fight the two simultaneous major regional contingencies, in Iraq and North Korea, as it had planned for more than a decade, it is exceedingly unlikely that the planners would have went through the process of determining the center of gravity of those two adversaries as a cohort. Likewise, it is improbable a major corporation, locked in "business warfare," would work to identify the critical vulnerabilities of all its competitors as a single entity.

Instead, the U.S. Government should concentrate on the individual terrorist groups that threaten its national interests, with greatest priority given to those that are the most dangerous. Al Qaeda has proven itself to be the most dangerous. Enabled by focusing on a single terrorist group, the great diplomatic, economic, military, and economic power of the U.S. and its allies can be brought to bear on the critical vulnerabilities of al Qaeda in order to attack its center of gravity. Success against al Qaeda will template a process for successfully attacking non-state terrorist groups and serve as a deterrent for those forming as a threat, much as U.S. operations against Libya impacted upon the state-sponsored terrorist threat.

WORD COUNT= 5999

ENDNOTES

[1] George W. Bush, *National Strategy for Combating Terrorism* (Washington, D.C.: The White House, February 2003), 1.

[2] Jeffrey Record, *Bounding the Global War on Terrorism* (Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2003), 7.

[3] Ibid, 7-13.

[4] Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 595-596.

[5] Joint Chiefs of Staff, *Joint Doctrine for Campaign Planning*, Joint Pub 5-00.1 (Washington, D.C.: U.S. Joint Chiefs of Staff, 25 January 2002), II-8.

[6] Joint Chiefs of Staff, *Doctrine for Joint Operations*, Joint Pub 3-0 (Washington, D.C.: U.S. Joint Chiefs of Staff, 10 September 2001), III-22.

[7] Ibid, III-22.

[8] Dr. Joe Strange, *Centers of Gravity & Critical Vulnerabilities: Building on the Clausewitzian Foundation So That We Can All Speak the Same Language* , Marine Corps University Perspectives on Warfighting, Number Four, 2d ed. (Quantico, VA: Defense Automated Printing Center, 1996), 2-3.

[9] Ibid, 43.

[10] COL Harry A. Tomlin, *The Center of Gravity Through Reverse Engineering* (Carlisle, PA: U.S. Army War College, 2002), 13-15.

[11] Ibid, 14.

[12] Ibid, 14.

[13] Ibid, 10.

[14] MAJ Phillip K. Giles and CPT Thomas P. Galvan, *Center of Gravity: Determination, Analysis and Application* (Carlisle, PA: Center for Strategic Leadership, U.S. Army War College, 1996), 17.

[15] Strange, 44 & 93.

[16] Ibid, 143.

[17] Joint Pub 5-00.1, II-7.

[18] Jane Corbin, *AL-QAEDA: In Search of the Terror Network that Threatens the World* (New York: Thunder Mountain Press / Nation Books, 2002), 23.

[19] Joint Pub 5-00.1, II-7.

[20] Ibid, II-7.

[21] Michael A. Ledeen, *The War Against the Terror Masters* (New York: St. Martin's Press, 2002), xxii.

[22] Simon Reeve, *The New Jackals: Ramzi Yousef, Osama bin Laden and the Future of Terrorism* (Boston: Northeastern University Press, 1999), 215.

[23] Reeve, 175.

[24] Ahmed Rashid, *Taliban: Militant Islam, Oil & Fundamentalism in Central Asia* (New Haven: Yale University Press, 2000), 132.

[25] Bush, 17-18.

[26] Reeve, 162.

[27] Ibid, 181.

[28] Ibid, 172-173.

[29] Ibid, 180.

[30] Ledeen, 27.

[31] Susanne Karstedt, "Terror and 'New Wars'," *11 September 2001: War, Terror and Judgement*, ed. Bulent Gokay and R.B.J. Walker (London: Frank Cass, 2003), 144.

[32] Strange, 3.

[33] Reeve, 222.

[34] Ledeen, 31-32.

[35] Robert Malley, "Faith and Terror," *The Washington Post*, 11 October 2001, pg. A.33 (860 words) [database on-line]; available from ProQuest; accessed 16 January 2004.

[36] Ledeen, 165.

[37] Jane Corbin, *AL-QAEDA: In Search of the Terror Network that Threatens the World* (New York: Thunder Mountain Press / Nations Books, 2002), 9

[38] Corbin, 22.

[39] Reeve, 182.

[40] Ledeen, 23.

[41] Philip B. Heymann, *Terrorism and America* (Cambridge, MA: The MIT Press, 1998), 19.

[42] Ibid, 47.

[43] Richard Labeviere, *Dollars for Terror: The United States and Islam* (New York: Algora Publishing, 2000), 117.

[44] Strange, 43.

[45] Reeve, 162-167.

[46] Ibid, 179.

[47] Ibid, 208.

[48] Labeviere, 322-324.

[49] Princeton N. Lyman and J. Stephen Morrison, "The Terrorist Threat in Africa," *Foreign Affairs* (Jan/Feb 2004): 79 [database on-line]; available form ProQuest; accessed 22 January 2004.

[50] Labeviere, 111.

[51] Ibid, 110.

[52] Ibid, 365.

[53] Reeve, 208.

BIBLIOGRAPHY

Bush, George W. *National Strategy for Combating Terrorism* . Washington, D.C.: The White House, February 2003.

Clausewitz, Carl Von. *On War.* Edited and translated by Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press, 1976.

Corbin, Jane. *AL-QAEDA: In Search of the Terror Network that Threatens the World* . New York: Thunder Mountain Press / Nation Books, 2002.

Fowler, LTC Christopher W. *CENTER OF GRAVITY – STILL RELEVANT AFTER ALL THESE YEARS.* Strategy Research Project. U.S. Army War College, 9 April 2002.

Friedman, George. "No Easy Battle." *The Officer* (October 2001): 27-28. Database on-line. Available from ProQuest. Accessed 16 January 2004.

Friedman, Thomas L. "War of Ideas, Part 1." *The New York Times*, 8 January 2004, pg. A.33, (781 words). Database on-line. Available from ProQuest. Accessed 16 January 2004.

_____. "War of Ideas, Part 2." *The New York Times*, 11 January 2004, pg. 4.15, (795 words). Database on-line. Available from ProQuest. Accessed 16 January 2004.

_____. "War of Ideas, Part 3." *The New York Times*, 15 January 2004, pg. A.33, (790 words). Database on-line. Available from ProQuest. Accessed 16 January 2004.

Giles, Major Phillip Kevin and Captain Thomas P. Galvan. *Center of Gravity: Determination, Analysis and Application.* Carlisle, PA: Center for Strategic Leadership, U.S. Army War College, 1996.

Heymann, Philip B. *Terrorism and America* . Cambridge, MA: The MIT Press, 1998.

Izzo, LTC Lawrence L. "The Center of Gravity is Not an Achilles Heel." *Military Review* (January 1988), pp. 72-77. Fort Leavenworth, KS: U.S. Army Command and General Staff college, 1988.

Karstedt, Susanne. "Terror and 'New Wars'." *11 September 2001: War, Terror and Judgement*, ed. Bulent Gokay and R.B.J. Walker, 139-154. London: Frank Cass, 2003.

Knickerbocker, Brad. "U.S.: A Bigger Stick and No Longer Speaking Softly." *Christian Science Monitor*, 15 January 2004, pg. 13, (1497 words). Database on-line. Available from ProQuest. Accessed 16 January 2004.

Labeviere, Richard. *Dollars for Terror: The United States and Islam* . New York: Algora Publishing, 2000.

Ledeen, Michael A. *The War Against the Terror Masters.* New York: St. Martin's Press, 2002.

Lyman, Princeton N. and J. Stephen Morrison. "The Terrorist Threat in Africa." *Foreign Affairs* (Jan/Feb 2004): Vol.83, Iss.1, pg.75, (3794 words). Database on-line. Available from ProQuest. Accessed 22 January 2004.

Malley, Robert. "Faith and Terror." *The Washington Post*, 11 October, 2001, sec.A, p.33 (860 words). Database on-line. Available from ProQuest. Accessed 16 January 2004.

Mendel, COL William W. "Operational Logic: Selecting the Center of Gravity." *Military Review* (June 1993) pp. 2-11. Fort Leavenworth, KS: U.S. Army Command and General Staff College, 1993.

Rashid, Ahmed. *Taliban: Militant Islam, Oil & Fundamentalism in Central Asia*. New Haven: Yale University Press, 2000.

Record, Jeffrey. *Bounding the Global War on Terrorism*. Carlisle, PA: Strategic Studies Institute, U.S. Army War College, 2003.

Reeve, Simon. *The New Jackals: Ramzi Yousef, Osama bin Laden and the Future of Terrorism*. Boston: Northeatern University Press, 1999.

Reilly, James LTC. *A Strategic Level Center of Gravity Analysis on the Global War on Terrorism*. Strategy Research Project. U.S. Army War College, 9 April 2002.

Strange, Joe Dr. *Centers of Gravity & Critical Vulnerabilities: Building on the Clausewitzian Foundation So That We Can All Speak the Same Language*. Marine Corps University Perspectives on Warfighting, number Four, 2d ed. Quantico, VA: Defense Automated Printing Center, 1996.

Tomlin, Harry A. COL. *The Center of Gravity Through Reverse Engineering*. Carlisle, PA: U.S. Army War College, 2002.

U.S. Joint Chiefs of Staff. *Doctrine for Joint Operations*, Joint Publication 3-0. Washington, D.C.: U.S. Joint Chiefs of Staff, 10 September 2001.

U.S. Joint Chiefs of Staff. *Joint Doctrine for Campaign Planning.* Joint Publication 5-00.1. Washington, D.C.: U.S. Joint Chiefs of Staff, 25 January 2002.