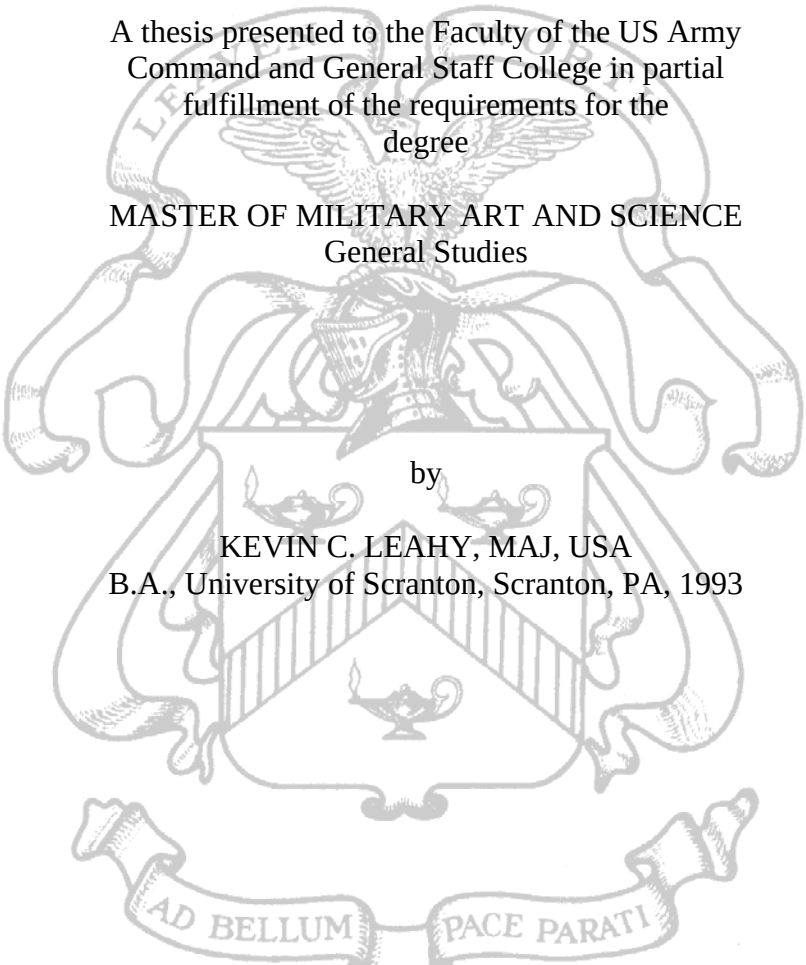
THE IMPACT OF TECHNOLOGY ON THE COMMAND, CONTROL, AND ORGANIZATIONAL STRUCTURE OF INSURGENT GROUPS

A thesis presented to the Faculty of the US Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE
General Studies

by

KEVIN C. LEAHY, MAJ, USA
B.A., University of Scranton, Scranton, PA, 1993



Fort Leavenworth, Kansas
2005

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From - To)*
17-06-2005	Master's Thesis	Aug 2004 - Jun 2005

4. TITLE AND SUBTITLE

THE IMPACT OF TECHNOLOGY ON THE COMMAND, CONTROL, AND ORGANIZATIONAL STRUCTURE OF INSURGENT GROUPS

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

MAJ KEVIN C. LEAHY

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

U.S. Army Command and General Staff College
ATTN: ATZL-SWD-GD
1 Reynolds Ave.
Ft. Leavenworth, KS 66027-1352

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 is unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT

Recent world events in Iraq have highlighted the power of insurgent groups in battling a more powerful opponent like the United States. Some reports have characterized the insurgency in Iraq as a technology-empowered, network-centric organization without a defined command and control structure while others have painted the insurgency as an undefined hierarchical organization. These contradictory reports have prompted the question: Has technology changed the way the Iraq insurgency operates? Three historical examples, the FLN in Algeria, the IRA in Ireland, and the Vietcong in South Vietnam display examples of insurgent organizations and further illustrate how these groups used technology for command and control. These historical examples were compared with reported trends of insurgent organization and insurgent activity in Iraq. The ultimate conclusion is that, although Iraqi insurgents attempt to utilize technology for command and control, they must revert to the same methods used by past insurgent groups because the US and coalition forces enjoy superiority in the area of technology. Furthermore, the Iraqi insurgency is an immature organization moving toward a hierarchy.

15. SUBJECT TERMS

Insurgency, Command and Control, Technology, Network-Centric, Hierarchy, Organization

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			**19b. TELEPHONE NUMBER** *(include area code)*
Unclassified	Unclassified	Unclassified	UU	75	

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

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

Name of Candidate: MAJ Kevin C. Leahy

Thesis Title: The Impact of Technology on the Command, Control, and Organizational Structure of Insurgent Groups

Approved by:

_____, Thesis Committee Chair
James H. Willbanks, Ph.D.

_____, Member
Mr. Michael L. Langley, M.S.

_____, Member
LTC Steven G. Meddaugh, M.S.

Accepted this 17th day of June 2005 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, Ph.D.

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

ABSTRACT

THE IMPACT OF TECHNOLOGY ON THE COMMAND, CONTROL, AND ORGANIZATIONAL STRUCTURE OF INSURGENT GROUPS by MAJ Kevin C. Leahy, 77 pages.

Recent world events in Iraq have highlighted the power of insurgent groups in battling a more powerful opponent like the United States. Some reports have characterized the insurgency in Iraq as a technology-empowered, network-centric organization without a defined command and control structure while others have painted the insurgency as an undefined hierarchical organization. These contradictory reports have prompted the question: Has technology changed the way the Iraq insurgency operates? Three historical examples, the Front for National Liberation in Algeria, the Irish Republication Army in Ireland, and the Vietcong in South Vietnam display examples of insurgent organizations and further illustrate how these groups used technology for command and control. These historical examples were compared with reported trends of insurgent organization and insurgent activity in Iraq. The ultimate conclusion is that, although Iraqi insurgents attempt to utilize technology for command and control, they must revert to the same methods used by past insurgent groups because the US and coalition forces enjoy superiority in the area of technology. Furthermore, the Iraqi insurgency is an immature organization moving toward a hierarchy.

TABLE OF CONTENTS

ACRONYMS

ALN	Army of National Liberation
CCE	Committee of Coordination and Execution
CJTF	Combined Joint Task Force
CPA	Civilian Provisional Authority
FLN	Front for National Liberation
HUMINT	Human Intelligence
IRA	Irish Republican Army
IT	Information Technology
NCW	Network-Centric Warfare
NLF	National Liberation Front
OS	Secret Organization
PAVN	People's Army of Vietnam
RMA	Revolution in Military Affairs
SIGINT	Signal Intelligence
USAJFKSWCS	United States Army John F. Kennedy Special Warfare Center and School
VNQDD	Viet Nam Quac Dan Dang

ILLUSTRATIONS

Page

CHAPTER 1

INTRODUCTION

The past sixty years have brought rapid advances in information technology. New technologies, like cell phones, the Internet, and satellite television, have brought the world closer and have introduced ideas, customs, and cultures to a worldwide audience. Television, although ubiquitous worldwide for years, has been supercharged with the addition of inexpensive satellite receivers. A satellite television user in Belgrade or Baghdad can have access to hundreds of channels of news, sports, entertainment, information, and disinformation. Information technologies, like the Internet, have connected people and organizations like never before. The technology that brings us the Internet has progressed to a degree where it is inexpensive enough for worldwide proliferation. People in countries with limited economic, military, and informational power now have access to the limitless information that is available on the Internet.

The scope and reach of these new technologies have been applied to business, social, and military organizations worldwide. With the ability to gather great amounts of information comes the ability to rapidly distribute that of information. Business organizations have adopted network-centric models that emphasize decentralized execution giving subordinate organizations wide latitude in accomplishing objectives. Today's military leaders advocate harnessing the power of modern information technology to launch a new revolution in military affairs (RMA). Deputy Secretary of Defense Paul Wolfowitz characterized this RMA in a 2001 interview by saying,

> Throughout history, warfare has assumed the characteristics of its age and the technology of its age. Today we see this trend continuing as we move from the

> Industrial Age warfare with its emphasis on mass to Information Age warfare which highlights the power of networked distributed forces and shared situational awareness. . . . Within this wider context of military transformation, network-centric warfare is one of the key concepts for thinking about how we will operate in the future. (Director, Force Transformation. 2005, 7)

Civilian organizations have also harnessed the power of information technology. Executives and supervisors have adopted mass electronic mail as a method of information dissemination. Some meetings have been eliminated because the information formerly dispensed at these meetings can be given out by electronic means. Mobile phone technology has allowed people to stay in contact with organizations and individuals like never before. Cell phones, pagers, and palm pilots allow the user to stay in constant contact.

Mass media also becomes a means to contact and distribute information globally. Commercials, news reports, and television programs become a means of communicating ideas and solutions worldwide. Television, mobile phones, and the Internet are progressing rapidly, and recent advances have blurred the lines that separated these technologies. All indications are that these technologies will continue to develop at a rapid pace. If American businesses, social organizations, and the U.S. military have adapted and exploited the explosion in information, it is logical to assume that the enemies of the U.S. have as well.

The network-centric organization utilizes new information technologies to flatten command, corporate and group structure. Have the enemies of the U.S. adapted a flat "net-centric" organization? Is it possible that our enemies have harnessed the power of technology to create new, elusive, networked organizations? Evidence from the battlefields in Iraq, Afghanistan, and the Philippines suggests that America's opponents

are utilizing informational technologies, but the question of whether there have been changes to the command and control structure of insurgent groups remains unanswered. Has the insurgency in Iraq launched a new RMA with technology developed in the west? If history is any indicator, a revolution in military affairs is rarely created by the superpower, which, in this case is the United States. History explains that the less powerful group generally creates the RMA; insurgents using modern informational technology could develop today's RMA.

The focus of this work will be on the insurgent groups that are at the heart of many global conflicts. The question this study will attempt to answer is this: Have rapid increases in information technology and the worldwide proliferation of these technologies changed the command and control structure of insurgent organizations?

The scope of this thesis will be confined to examining the command and control structure of three historical insurgent groups: the command and control structure of the current Iraqi insurgency, the use of technology by these groups, and the influence technology played in the command and control of these insurgent groups

This topic is important because insurgent organizations have traditionally been so difficult to defeat. One of the keys to combating these groups is in understanding their organization and command and control structure. If the counterinsurgency commander can map the command structure of an insurgent group, he can then use this information as a tool to dismantle the organization. Furthermore, if specific information technology enables insurgent command and control, these technologies can be denied or exploited by US forces to decrease the effectiveness of these organizations.

One of the secondary questions this study will answer is: how are insurgent groups employing information technology for command and control? Past insurgent groups have quickly grasped the importance of new technologies; radio and telephones have been used with some success by past insurgencies. It is already known that insurgents use cell phones to alert forces of enemy movement and to detonate improvised explosive devices, but it has yet to be determined how the cell phone has changed the command and control structure of insurgencies. Insurgent groups have employed other information technology as well. The Internet has been used to post coded operating instructions and insurgent groups have used the mass media to convey information and demands. Recently, insurgents in Iraq have used the media to make demands; kidnapped soldiers and civilians in Iraq have been displayed on air and later beheaded to send a message of terror. In one case, the Philippine Government withdrew forces from Iraq following broadcasted threats against Philippine contactors who had been abducted. Use of the media to convey information and demands and use of cell phones to communicate are just some of the ways that insurgent groups have utilized information technology. This work will show how, if at all, these technologies affected the command and control of these groups.

This study will answer another subordinate question by looking to the past, what commonalities existed between the command and control structure of past insurgencies? Looking at past insurgencies and analyzing the command and control structure of these groups will accomplish this. Furthermore, this work will endeavor to provide an overview of US unconventional warfare doctrine, which has been modeled upon past insurgencies. US counterinsurgency doctrine was developed almost forty years ago to counter

communist insurgencies; there have been very little changes to this doctrine in the years following the Vietnam War. This work will also examine the information technology that was available to past insurgent groups, explain how these groups utilized these technologies and display how available information technology influenced the command and control structure of these groups.

Key Terms

Counterinsurgency: Those military, paramilitary, political, economic, psychological, and civic actions taken by a government to defeat an insurgency (JP 1-02).

Guerrilla: The guerrilla is a combat participant in an insurgency (USAJFCSWCS 1974, 5). The guerrilla is the individual that takes action against the occupying force or the government depending on the insurgency. In this thesis, all guerrillas will be insurgents, but all insurgents are not guerrillas. There are many other parts of an insurgent group other than the guerrilla force.

Hierarchical Organization: An organization that receives all guidance and instructions from a command cell at the top of the organization. The command cell makes decisions, coordinates, and disseminates information to subordinate cells which also have subordinate cells beneath them. The cells may coordinate horizontally, but instruction and control emanates from the command cell at the top. Hierarchy is the common structure of government, military and business organizations.

Information Technology (IT): A broad term defining technology which is involved in the gathering, processing, analysis, and dissemination of information. Information technologies include computers, computer networks, and telecommunication.

Also inclusive in the term information technology is the technology involved in mass media such as: cable and satellite television networks.

Insurgency: An organized movement aimed at the overthrow of a constituted government through the use of subversion and armed conflict (JP 1-02). For the purposes of this work, an insurgency will be defined as a local organization aimed at the overthrow of a constituted government. This definition excludes transnational organizations and global movements

Network-Centric Organization (NCO): A network-centric or "net-centric" organization is an organization that uses information technology as a means of coordination and communication. There may not be a strong central command in a network-centric organization. A network-centric organization features semi-autonomous cells acting in coordination with other cells. The command cell or more influential cell will give broad guidance or ideas and the other cells will act upon this. Network-centric organizations are networks, which are empowered by information technology; they may use tools like the Internet for lateral coordination.

Network-Centric Warfare (NCW): "The term network-centric warfare broadly describes the combination of strategies, emerging tactics, techniques, and procedures and organizations that a fully or partially networked force can employ to create a decisive warfighting advantage. . . . NCW generates increased combat power by networking sensors, decision makers, and shooters to achieve shared awareness, increased speed of command, greater lethality, increased survivability, and a degree of self synchronization" (Director, Force Transformation 2005, 3).

Revolution in Military Affairs: A complex mix of tactical, organizational, doctrinal, and technological innovations in order to implement a new conceptual approach to warfare or a specialized subbranch of warfare (Knox and Murray 2001, 12).

Underground Organization: The clandestine organization that acts as the command and control structure of an insurgency. The underground may infiltrate an enemy government or carry out subversion and sabotage. The underground also performs administrative and coordinating functions for the insurgency. An underground is usually a hierarchical organization rising from a base of cells through branches and districts to a national headquarters. The underground is composed of hard-core members and peripheral supporting members sometimes referred to as the auxiliary. Unorganized sympathizers and persons providing minimal support can also be included in the underground organization (USAJFCSWCS 1974, 7).

CHAPTER 2

LITERATURE REVIEW

This literature review is divided into three segments: US insurgency doctrine, historical studies, and contemporary views.

US Doctrine

US insurgency doctrine can be found in several US Army publications. These publications display the current understanding of insurgent organization and tactics by the United States Army.

The United States Army John F. Kennedy Special Warfare Center and School (USAJFKSWCS) at Fort Bragg is the proponent for the development of US unconventional warfare doctrine. Much of the doctrine published by USAJFKSWCS has concentrated on instructing US forces in developing insurgent organizations. In the development of these organizations, the doctrine outlines the command structure and essential prerequisites to conducting an insurgency.

The USAJFKSWCS student handout, *Principles of Resistance,* published in 1974 specified three perquisite conditions for establishing an insurgency, unity of effort, will to resist, and support of the people. All of these prerequisites, according to the authors, rely on communication and organization.

The manuals published by USAJFKSWCS specified that to command and control an insurgent organization a central command must be established, but the issuance of mission type orders with a desired end state allowed for flexible execution and overcame the problems of commanding and controlling a widely dispersed organization. These

issues were also addressed in the 1975 USAJFKSWCS manual, *Standing Operating Procedures for Special Forces Operational Detachments in Unconventional Warfare,* flexibility was an essential quality of a successful insurgent organization.

A Department of the Army pamphlet, *Human Factors Considerations of Undergrounds in Insurgencies,* published in 1966, discussed the use of information technology by the underground portions of the insurgency for command, control, and coordination. In this document, communications between insurgent members was a very dangerous activity. Couriers were specified as the most basic and safest form of communication. In past insurgencies, 90 percent of communications were conducted by the use of couriers. Mail drops and dead letter drops were also addressed as safe forms of communication. The main electronic communications means addressed was the telephone. The telephone was considered particularly risky because enemy forces could monitor it. The telephone also provided limited mobility, but could be used to send coded instructions. Radio broadcasts, leaflets, and newspapers were mentioned as the most expeditious way of disseminating information.

The United States Marine Corps *Small Wars Manual,* written in 1940, also discussed the use of radios by insurgent groups as well as the danger to US forces of having their own uncoded communications intercepted by a radio savvy insurgent force.

The most recent US doctrine based on lessons learned in Iraq and Afghanistan depicted the organization of insurgent groups in much more general terms. FMI 3-07.22, *Counterinsurgency Operations,* published in 2004, discussed the recent perceived changes in insurgent leadership from a strict hierarchy to a flexible organization with multiple leaders and a unifying goal. Essentially, emerging doctrine seeks to define the

organization of an insurgency as an insurgent coalition of many factions. FMI 3-07.22 also briefly touches upon insurgent communications by stating that insurgents will use a wide array of communications from computers to couriers.

Historical Studies

To examine past insurgent groups, this study uses writings that illustrate the organizational structure of these selected past insurgencies and the use of existing information technology by these organizations.

One example of the historical literature on insurgencies is N. I. Klonis' *Guerrilla Warfare Analysis and Projections,* published in 1972. This work provided an overview of the actions of a wide variety of insurgent groups. Of particular interest is the analysis of the use of communications equipment by insurgent organizations of the 1960s and early 1970s. Klonis stressed the importance to insurgent groups of having some communications link with their support system. Most important was communication with external sources of support. The theme of external support was repeated throughout the historical literature examining insurgent groups. Klonis discussed insurgent fear of compromise when using electronic communications. The insurgents using minimum transmissions and the periodic switching of transmission sites following use addressed this problem. The focus of the communications in this work was primarily wireless AM/FM radio use and wired communication between insurgent locations

The *Casebook on Insurgency and Revolutionary Warfare: 23 Summary Accounts,* published by the Special Operations Research Office in 1962, dissected the organization and structure of different historical insurgencies. This work depicted the Algerian insurgency as hierarchical structure based on some of the existing political, security, and

military structures existing in Algeria. This work discussed the importance of the safe haven provided to the guerrillas in Tunisia. In later years of the war, much of the support, command, and training for the Front for National Liberation (FLN) came from Tunisia. Because external support was critical, the communication link between the insurgent commanders in Tunisia and the district military commanders in Algeria was critical as well.

Radio stations abroad were particularly useful for disseminating information. Many other historical works discuss FLN broadcasts transmitted to the population from an external source. This method ensured safety for the transmitter, but also was an overt measure of support by the host government.

The Algerian Insurrection, 1954-62, by Edgar O'Balance, published in 1967, was an examination of the Algerian insurgency with focus on the history of the FLN. O'Balance pointed out the disparate groups that coalesced to form the FLN. The FLN emerged as the most prominent of several insurgent groups operating in Algeria in the years immediately following World War II. In this work, O'Balance provided a detailed examination of the structure of the FLN.

Algeria in Turmoil: A History of the Rebellion, by Michael Clark, published in 1959, was another work that covered the FLN insurgency in Algeria. Clark reaffirmed the hierarchical structure of the FLN and discussed FLN communication techniques. Clark showed that the FLN used a series of letter drops to convey information from the headquarters to subordinate cells. The FLN also used radios for command and control. The FLN internal committee used internal and external radio stations to beam decrees to their forces in Algeria. Sometimes these decrees were merely propaganda, but at other

times, the radio decrees were calls to action for subordinate units. Clark discussed the sparing use of the telegraphs in Algeria to communicate by code. The FLN was more likely to attack and destroy the telegraph and telephone system to deny the French its use. Clark emphasized that although the FLN used radios, it was not dependent on electronic communications.

Even when insurgent groups had access to television and radio transmitters and the population could receive their transmissions, there were technical hurdles. A problem for past insurgencies was that television and radio transmissions required technically talented people; this resource was not always available to insurgent forces. The problem of having technically proficient people is probably even more worrisome for insurgent groups operating today.

In *Revolutionary Guerilla Warfare*, published in 1972, Sam Sarkesian looked at the command of insurgency. His study concluded that although guerrilla warfare did not require as high a degree of centralization as conventional warfare, it still required a central command to successfully prosecute a guerrilla campaign. Further discussed was the need for coordination. There was a proper balance between centralization and autonomy that needed to be achieved by insurgent commanders.

An insurgency that failed to utilize information technology was the Che Guevara led Bolivian insurgency of 1966. J. Moreno's essay, "Che Guevara on Guerilla Warfare: Doctrine, Practice, and Evaluation," examines Guevara's actions. As The National Liberation Army of Bolivia began to fail in 1967, Guevara himself pointed at the failure of communication as a factor in his defeat. Guerrilla lines of communication in La Paz with external support in Argentina, Cuba, and other Latin American countries had been

cut by the Bolivian Army. Guevara lamented the lack of support he received from the Bolivian population; he was not able to get the message of his insurgency to the population. His lack of communication led to a lack of support from within the country and from outside sources. Without support, Guevara and his efforts were doomed. Guevara also suffered a lack of tactical communication that led to uncoordinated efforts by guerrilla forces. At one point, Guevara lost contact with a large potion of his guerrilla forces in the field; he felt that this loss of contact contributed to the defeat of his uncoordinated and separated forces. Guevara realized that awareness was the first step in mobilizing the population to support an insurgency, but he could not get his message out. According to Moreno, the Bolivian government strangled the communication between Guevara's forces and Guevara's communication with the Bolivian population

Robert Moss addressed the complications of an insurgency in an urban area in his essay, *Urban Guerilla Warfare*, published in 1968. In Moss' work, the urban insurgent was defined as an insurgent that fights and lives in the same area as the enemy forces. Isolation formerly achieved by geographic separation was achieved by using the features of the complicated urban environment to separate the guerrilla from the enemy according to Moss. Moss also depicted a changing guerrilla force. Moss' urban guerrilla forces sought to make themselves much more like their supporting underground. Moss specifies that the mission, organization, and geography dictated the organizational structure of the urban guerrilla. Most important for the guerrilla organization was flexibility. The urban guerrilla organization, although generally weaker than their enemy, used flexibility to obtain temporary superiority over an enemy force. The temporary superiority was usually localized. Moss depicted both the guerrilla and underground organizations as cellular

structures with similar characteristics. Moss detailed an insurgent hierarchy consisting of an area command with operational cells below it responding to an ultimate high command. The cells were established to conduct a particular function. There was coordination between cells at all levels and in many cases, the guerrilla cells coordinated directly with underground cells that operated in the same area or had been designed to provide support to the guerrilla cells.

Warfare in the Enemy's Rear, by Otto Heilbrunn, published in 1963, was an analysis of partisan activities during World War II. Heilbrunn's work showed that partisan groups exploited information technology to increase effectiveness. Russian partisans operating behind German lines following the invasion of the Soviet Union were initially ineffective, until supplied with radios by the Red Army. Prior to the introduction of radios, Russian partisans relied on foot messengers, carrier pigeons, and even dogs to communicate. Although these means were sometimes effective, they were extremely slow and hindered coordination. Also discussed by Heilbrunn was the injection of advisors by an outside entity supporting the partisans. According to Heilbrunn, these advisors introduced the direction and coordination needed to make the insurgent force effective. Heilbrunn displayed that it was outside intervention that often introduced denied or restricted information technologies to insurgent forces.

In *Counterinsurgency Operations* by Julian Paget, published in 1967, the concept of the guerrilla and underground force was displayed again. Paget analyzed insurgencies containing military and political elements. Paget analyzed insurgent organizations faced by British forces in Malaya, Kenya, and Cyprus. In each of these actions, the insurgent organization was later mapped out along the political-military or underground-guerrilla

lines. In each case, Paget depicted the insurgent organizations as a hierarchy. The organizations generally followed the model of a national leadership, regional leaders, local leaders and finally, platoons, squads and cells depending on whether the organization was military or political. Communication and coordination by these groups, according to Paget, was confined to messengers and personal contacts. Paget discovered that when the insurgencies were dependent strictly on messengers and personal contacts the operations became slow and difficult to coordinate. Another problem discussed by Paget was the isolation of insurgent cells that occurred when messengers were captured or compromised.

Paget in Counterinsurgency Operations also discussed communication and popular support. According to him, popular support was a critical requirement for the survival of an insurgency and was sometimes gained through the use of propaganda. In the case of Malaya, Paget found that the Communist insurgents lost the support of the people. The British forces used propaganda leaflets and loudspeaker broadcasts by airplane to undermine the insurgents. Paget cites the failure to communicate their message to the people, coupled with lack of external support and oppressive tactics as factors that undermined the Malayan insurgency.

The *Casebook on Insurgency and Revolutionary Warfare* by the Special Operations Research Office, published in 1962, detailed the extensive Vietminh actions used to gain popular support. The techniques employed were not complicated or technical, but highly effective. The authors determined that whispered propaganda, conferences, assemblies, and directed discussions were effective. Also cited by the authors were rumors, pamphlets, radio and plays as effective means employed by the

Vietminh to communicate their message. During this time, the Vietminh established themselves as a hierarchy with a national leadership, regional and local committees. According to the authors, these organizations maintained a cellular structure for flexibility and security. The guerrilla units were organized in a similar fashion with local regional and national guerrilla commands. Each of these groups was closely aligned with its counterpart in the underground.

The Vietcong adapted much of the Vietminh structure and tactics. In *Victor Charlie* by Kuno Knoebl, published in 1967, the National Liberation Front (NLF) and its guerrilla arm the Vietcong were illustrated as a hierarchical organization with national, district, and local leadership. Knoeble depicted the NLF as a maturing insurgent group that began as a coalition of several disparate groups with different agendas. Knoebl concluded that the NLF gained power and eventually coordinated the actions of many different religious, ethnic, criminal and political groups. According to Knoeble, the NLF gave disparate groups with different agendas a direction to defeating the common enemy that, at the beginning was the South Vietnamese government of Ngo Dinh Diem.

Knoeble also details information about NLF and Vietcong use of radios and messengers. Like many other insurgent groups, the NLF used an external radio station to mobilize forces. For tactical command and control, the Vietcong used of radios and wire communications. A large piece of Vietcong communication was done in meetings and through runners and couriers. These couriers moved by foot, cars and motorcycles to convey their messages.

Douglas Pike's *PAVN: Peoples Army of Vietnam*, published in 1986, was a comprehensive review of the composition and history of the Vietminh's military arm.

Pike discussed the evolution of the People's Army of Vietnam (PAVN) from early Communist party self-defense groups to the state army of Vietnam. Pike detailed the early competition between the early Vietnam communists and non-communist groups, like Viet Nam Quac Dan Dang (VNQDD), a nationalist group opposed to French colonial rule. The violence of the VNQDD spurred radical communists to push Vietnamese communists to take a more militant approach to the anti-French struggle.

Pike also discussed Ho Chi Minh's unification of divergent communist fronts under one unified front which was later known as the Vietminh. Pike further detailed Vietminh actions in support of the allies during World War II and later support to the Vietcong forces in South Vietnam. Pike also touched upon the hierarchical structure formed by the PAVN and communication techniques used during early PAVN guerrilla operations. In *A Vietcong Memoir,* a former prominent member of the NLF, Truong Nhu Tang, discussed his years in the NLF. Tang discussed early formation of the NLF and NLF efforts to bring together different groups to oppose the Diem regime. Initial NLF communication, according to Tang, was almost entirely by personal contact and messengers. As the NLF organization matured, telephone was incorporated into command and control, but members were always aware of efforts by the South Vietnamese security forces to monitor telephone conversation.

The Provisional Irish Republican Army (IRA) presented the case of an insurgent organization that was in operation for over thirty years. In *The IRA, 1968-2000,* by J Bowyer Bell, published in 2000, the details of IRA command and structure were well illustrated. Bell depicted the IRA is as an insurgency with a robust communications infrastructure. Although the IRA had modern information technology available, it relied

most heavily on personal contacts to coordinate activities according to Bell. Bell depicted the IRA as a cellular hierarchy; the cells were given general guidance, but considerable leeway in how operations were conducted. Bell also discovered that the IRA found the telephone to be a vulnerable form of communication; very little use was made of telephones because the British could easily monitor the phone system

In *A Secret History of the IRA* published in 2002 by Ed Moloney detailed the history of the IRA was detailed from its early years, through the 1916 uprising, the lean years of the 1940s and 1950s through the development of the Provisional IRA in the late 1960s. The IRA was depicted by Moloney as an organization that changed with conditions over the years and sought to maintain relevance in periods of peace and public indifference. According to Moloney, in the late 1960s, the Provisional IRA or Provos moved the organization from a latent and incipient insurgency to full guerrilla warfare. The organizational structure assumed that of the earlier IRA, but the Provos began to emphasize the autonomous cell that took action with little guidance. *A Secret History of the IRA* also displayed the relationship between the military wing and the political wing of the organization. The political wing of the IRA, Sinn Fein, worked with the IRA to gain the public support that was essential to the organization. Moloney also depicted the IRA as an organization that received critical external covert support from supporters in the United States, overt political support from Libya and covert support from Libya in the form of weapons and explosives, and covert support from the Revolutionary Armed Forces of Columbia (FARC) insurgents. The organization of the IRA was closely detailed and charted as well. Moloney's IRA was a hierarchy with a headquarters, regional commands, battalions and local cells. Moloney also concluded that other insurgent

groups like the Vietcong influenced the IRA. In 1987, the IRA sought to replicate the effects of the Tet Offensive by organizing a general offensive with a large Libyan arms shipment. Because the IRA had been compromised, the shipment was intercepted and the Tet re-creation became just a dream. The Provisional IRA largely put down its arms in 2001 following vigorous diplomacy, and reverted to the latent and incipient insurgency that it was before the Provos began their insurgency in 1968.

Contemporary

The literature concerning the insurgencies in Iraq and Afghanistan is immature and largely consists of periodicals, government commissioned studies, and declassified reports from the commands conducting counterinsurgency. The clear retrospective view enjoyed by historians looking back at past insurgencies is not yet available for today's insurgency, but information concerning the command and control of these groups and the use of information technology by these groups is voluminous in the press.

An excellent resource detailing the actions of the Iraqi insurgency and drawing parallels with the Afghan insurgency is a very recent Center for Strategic and International Studies (CSIS) study, *The Developing Iraqi Insurgency: Status at End 2004* by Anthony Cordesman. This work outlined the strategy of coalition forces countering the Iraqi insurgency and detailed tactical actions that coalition forces have used as well. Cordesman's work also covered battlefield statistics released by the coalition and most importantly the insurgent use of information technology. Cordesman addressed the ever-adapting face of the insurgency in Iraq; the Iraqi insurgency became very skilled at the use of information warfare against the coalition.

Newspaper stories detailing the actions of the Iraqi insurgency are abundant. Many of these stories discuss insurgent use of information technology and insurgent structure. A *Washington Post* article by Rowan Scarborough, November 17, 2003, discussed insurgent use of cell phones and word of mouth to coordinate their efforts. Also addressed in this article is the use of cell phones to detonate improvised explosive devices. Scarborough paints a picture of an organized insurgency that actively coordinated attacks against coalition forces. Scarborough also discussed the personal connections through friendships and family ties that the insurgency used for coordination.

Another newspaper article by Robert Scales published in the *Washington Times* on 3 February 2005 discussed the use of technology versus human intelligence to combat the Iraqi Insurgency. Scales detailed the limited successes realized by the coalition when technology was the primary tool to combat the Iraqi insurgents. Scales documents how human assets such as well-trained interpreters and culturally aware intelligence personnel have been far more successful in countering the insurgents than all of the technology-based intelligence currently in use.

In other fronts on the war on terror, insurgent use of information technology is found. Newspaper accounts from the Philippines show Muslim insurgents using cell phones. The Philippine guerrillas have actually used text messaging, a common feature on cell phones, to send insults and threats to government forces. The insurgents are doubtlessly using this technology for activities other than sending text message insults. Press releases from Afghanistan and the Philippines also point to insurgents that use computers as well.

Several Middle East newspapers discussed the details of the Iraqi phone system. Discussed by these newspapers were the explosive growth of the Iraqi cell phone system and the growing role of cell phones in the daily lives of Iraqis. The cell phone became the primary means of communication for Iraqis and is cited by several newspapers as being the primary means of communication for the Iraqi insurgents.

Another source of information concerning the Iraqi insurgency comes from Coalition press releases. A study of these press releases shows that US and coalition forces continue to find various forms of information technology in the hands of the insurgents. For example, a coalition press release from May 2004 revealed that computers and cell phones are as common to the insurgent as the assault rifle; it revealed "soldiers also confiscated weapons, computers, cell phones, documents and compact discs during the operation" (CJTF 7 press release 040510)

Other sources indicate that Iraqi insurgents for command, control and information dissemination have used the Internet. A quick look at the Internet reveals numerous websites dedicated to Iraqi web logs or blogs. These blogs are essentially diaries that are posted online for others to read. If communicating a message to the people is essential, one look at these blogs will show that that objective is being accomplished. Many of the blogs discuss the activities of US forces and seem to concentrate on the shortcomings of the US strategy and the actions of US forces. As discussed in many historical documents, a key to gaining popular support in an insurgency is to display or demonstrate the incompetence of government forces. These blogs illustrate the discontent and failed expectations of many Iraqis. Although these Iraqi blogs do not necessarily represent the entire population of Iraq, they do indicate that some Iraqis with the means and know-how

to utilize information technology are unhappy with the current government and are willing to communicate their dissatisfaction. It is not hard to imagine that these blogs could also be used as a means of command and control by using coded messages.

Additional sources for information on the Iraqi insurgency are government and private source reports, periodicals and current battle reports. These sources illustrate the organization of the Iraqi insurgency and the Iraqi's insurgency's use of available information technology.

The 2004 Rand study *Insurgency and Counterinsurgency in Iraq* by Bruce Hoffman describes the Iraqi insurgency as a network-centric organization without a center of gravity or a fixed chain of command. This premise is also found in other news articles and periodicals discussing the Iraqi insurgency. In Iraq, vastly different organizations with differing goals form a loose network dedicated to attacking enemy forces. In this scenario, the insurgents may even work with organizations to which they formerly had been opposed. The network-centric insurgency draws its strength from the fast sharing and dissemination of information. Computers and cell phones enable this capability. In Iraq, these capabilities are contributing to the networking of varied insurgent groups. The Rand study theorizes that US doctrine developed to counter an insurgency that can be diagramed and easily charted is ineffective today, because the insurgency in Iraq cannot be diagramed and charted. In Iraq, there is no readily identifiable insurgent chain of command that can be systematically dismantled, as the French were able to do against the FLN in Algeria. The implication for US forces conducting counterinsurgency in Iraq today is that they must adapt to an extremely flexible, widely dispersed, and semi-autonomous organization. The authors of the Rand

study are quick to point out that it is too soon to determine if the insurgency can continue to operate this way.

The Network-Centric Warfare (NCW) theory is further developed in other articles and periodicals. Some authors speculate that the NCW being waged in Iraq is completely spontaneous. When US Forces arrived in Iraq, there was a period of relatively little insurgent activity that gradually achieved momentum. The momentum was achieved attack by attack. As word of these successful attacks spread, other groups and people decided to join in. While this was occurring, word of reported misdeeds by US and international forces and the expectations these forces failed to meet contributed to the momentum for violence. The word of these attacks spread by the media and word of mouth. The effects of this information were only magnified as electricity was restored adding to the number of TVs and radios that could be used. Further additions of enhanced Internet capabilities and advanced cell phone networks only made the information travel faster. All of these effects combined to form what John Robb refers to in his *Global Guerillas* website as a "bazaar of violence" with each new attack leading to further attacks. The network-centric insurgency gains momentum and becomes more difficult than ever to stop.

A 7 February 2005, *Newsweek* article on the Iraqi insurgents by Rod Nordland, Tom Masland, and Christopher Dickey depicted a loose coalition of insurgent groups working together as highly networked organization. The networked Iraqi insurgency is slowly migrating toward a hierarchical organization with command and control dictated by elements of the former regime.

A definitive work on Network-Centric Warfare and the US military is the Department of Defense's new publication, *The Implementation of Network-Centric Warfare.* This publication defines Network-Centric Warfare and discusses the benefits that NCW will have for US forces. Also discussed is the danger of NCW being exploited by enemy forces.

This review covers some of the main works used to examine the command and control structure and the use of technology by insurgent organizations. It gives an overview of available literature and is not a comprehensive review of every work used to formulate this thesis.

CHAPTER 3

RESEARCH METHODOLOGY

The research in this thesis is divided into two elements, historical analysis and a consideration of contemporary observations and perspectives on the ongoing insurgency in Iraq.

The first step was collecting the pertinent historical data concerning insurgencies and the use of information technologies. In the vast amount of available literature concerning insurgencies, there was a significant amount of information detailing insurgent structure, but very little concerning insurgent use of information technologies. This portion of research was then broken down further into determining the command and control structure of insurgent groups and determining how available information technologies were employed.

An analysis of three insurgencies in Vietnam, Algeria and Northern Ireland yielded the model insurgent organization that is contrasted with the current insurgency in Iraq. The model that generally appeared throughout the surveyed historical literature was a cellular hierarchy with three main components, the guerrillas, the underground and the auxiliary.

A second part of the historical analysis examined was insurgent use of information technologies. Examining the same three organizations revealed the manner in which these groups utilized the available information technology. In the three historical cases, the insurgents had differing amounts of information technology available, but all groups attempted to utilize information technology in one form or another. The FLN,

IRA, and Vietcong present well-documented historical insurgencies from the 1940s through the 1990s. These six the decades represent a time period of explosive growth in information technology.

The second step in the research process was the examination of current thoughts and perspectives on the Iraq insurgency and its use of information technology. The Iraqi insurgency was selected because many reports have indicated that modern information technology has heavily influenced its command and control structure.

A difficulty in using current data is that it may be incomplete. The actual structure of the insurgent group has yet to be definitively mapped as it is in the last sixty years for the historical models considered. What further complicates the issue of looking at the structure of the current insurgency is that it can change; the Iraqi insurgency is a maturing organization that may look very different as long as it goes on. The US and coalition forces are also trying to dismantle the insurgent organizations; this may lead to a modifications in the structure of the insurgency in response, then complicating efforts to define clearly the insurgent structure.

The final piece of research into the contemporary Iraqi insurgency is the interview portion. Personnel that are intimately involved in countering the insurgent groups present an unfiltered look at how the insurgent group is organized and how the insurgent groups are utilizing information technology.

A benefit of using interviews is that it provides an on-the-ground view of the insurgency. It also provides the most current views on insurgent organization and structure. This strength can also be a drawback. Interviews with personnel operating in various locations in Iraq and Afghanistan provide a scope that is limited to the subject's

experience. The subjects may have been confined to an area where the insurgent group acts differently than in the rest of the country; they may not be able to convey an accurate picture of the insurgency. To counter this inherent weakness, various personnel from different levels of the US command structure and also from various regions in their respective countries were interviewed. By varying the command level and location of interviewees, a common picture can be established. An additional weakness of interviews is that of personal bias. When asking questions, the questions were not designed to lead the subject of the interview in any direction, but inadvertent personal bias can color how a subject views the insurgency.

Another problem that emerges in the examination of current data is information classification. Some insurgent activities are unknown or are known and remain classified. Such classified information may not be released for many years. This thesis is unclassified, which restricts access to some of the most current data on information technology use by the insurgents and how coalition forces are countering information technology used by the insurgents.

CHAPTER 4

ANALYSIS

An analysis of the structure of past insurgencies revealed that these groups were similarly organized hierarchies with semi-autonomous subordinate cells.

The FLN in Algeria

From 1954 to1962 the Algerian FLN battled the French for Algerian independence. In the seven years that the FLN fought the French, the organization grew from a small band of 2,000 to 3,000 militants to a revolutionary force numbering over 130,000 with massive popular support. By 1962, the FLN had compelled France to grant Algerian independence (Special Operations Research Office 1962, 235).

The FLN established a hierarchy that eventually assumed military lines. There was a headquarters composed of a central committee with subordinate commands which were further divided into smaller subordinate commands. The FLN had its origins in the earliest resistance groups opposed to French rule.

French military occupation of Algeria began in 1830 with settlers soon following the military. After a series of uprisings by the indigenous population over land disputes, the French formally annexed Algeria as part of France in 1884, but French citizenship was not extended to the indigenous Algerians. Multiple Algerian resistance groups formed after World War I; each of these groups shared a common agenda, which called for independence from France and the influence of French culture, to include the adoption of Arabic as the official language of Algeria. Early Algerian resistance groups were a heterogeneous mix of religious, economic, and intellectual groups.

After broken promises of Algerian self-determination made by the French government during World War II and a series of internal disputes amongst the Algerian resistance, influential resistance members formed the Secret Organization (OS). The OS was organized as a hierarchy with a national chief, below him the organization was broken down into regional commands, which were further divided into zones, then sections, localities, subgroups and half-subgroups. The half-subgroups, composed of two men and a leader, became the basic unit of the OS paramilitary force. The OS disbanded following arrests of many of its key members by French authorities. Remaining OS leaders migrated to a new organization, the Revolutionary Committee for United Action (CRUA) (Special Operations Research Office 1962, 236). The leadership of the CRUA determined to launch a new uprising on 1 November 1954 and adopted the name, FLN.

As the FLN insurgency matured, the military and political wings separated and the rebel forces became the Army of National Liberation (ALN). The ALN was organized along military lines similar to the FLN. FLN leadership operated from the sanctuary of Cairo and Tunis where FLN support organizations were located (Special Operation Research Office 1962, 252). This external support apparatus was critical to supporting long-term FLN efforts.

The headquarters of the FLN was the Internal Delegation and the External Delegation. The Internal Delegation was composed of political leaders from each district or *willaya*. As the FLN grew and the military function became separated from the political function, each *willaya* then had a military commander. According to Edgar O'Balance, "The Internal Delegation consisted of the nominated leaders of the *willayas*, the military zones or districts, in Algeria itself, who were the most autonomous military

commanders on the spot" (1967, 42). Each district had smaller groups of armed bands reporting to the district headquarters for guidance. The district headquarters performed some overlapping political functions such as tax collection and general administration (Klonis 1972, 136). The small-armed bands in each district were organized primarily along the lines of personal relationships and geography.

As the military wing of the FLN gained more responsibility, the *willayas* and their subordinate areas or *montikas* were further divided down into *nahias* (regions) and these *nahias* were even further divided down into sections, the smallest territorial subdivision (see figure 1) (O'Balance 1967, 73). According to O'Balance, "At all levels, from the *Willaya* right down to the section, and from the battalion right down to the platoon, the collective principle of command was applied, with the political officer participating in all decisions and being consulted in all matters" (1967, 74).

External support was essential to the FLN. Support came from neighboring states like Morocco, Tunisia, and Egypt. The FLN organized itself in a manner to exploit external assistance. In *The Algerian Insurrection 1954-62*, Edgar O'Balance commented on Algerian external support by saying, "The external delegation, based in Cairo controlled the political direction of the revolutionary movement, and was responsible for such matters as procuring arms and supplies, establishing lines of supply into Algeria, and obtaining diplomatic, financial and military assistance from any sympathetic states" (1967, 41).

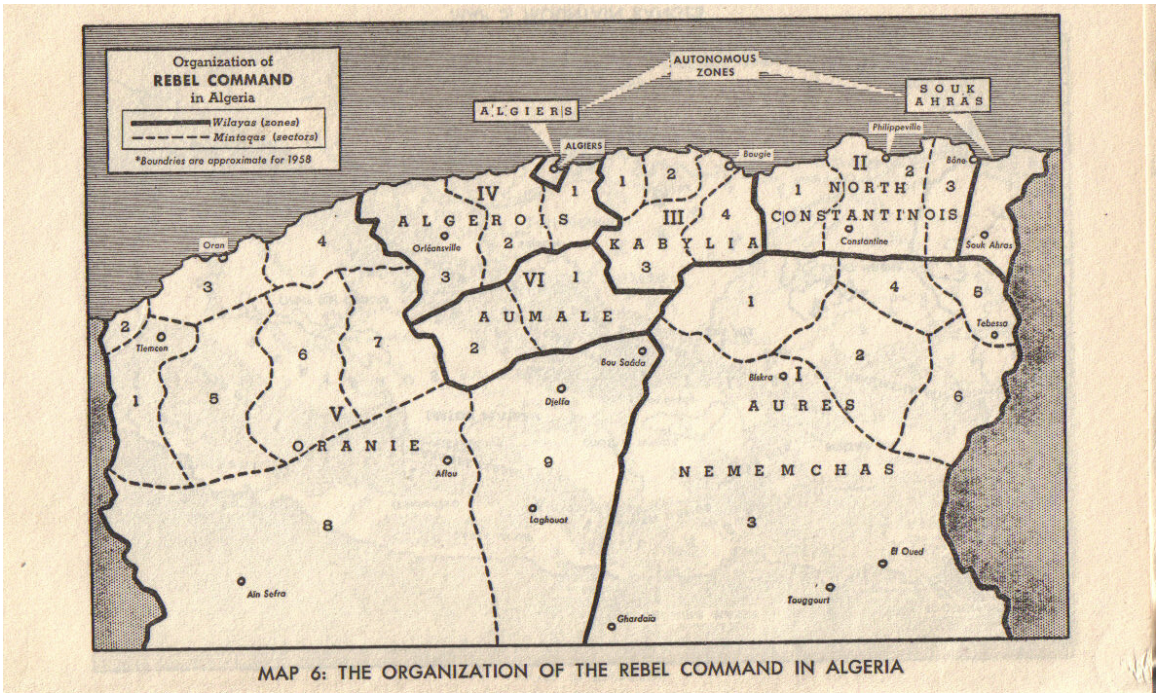


Figure 1. The Organization of the Rebel Command in Algeria
This map shows the breakdown of the FLN by *willayas* and *montikas*.
Source: Clark 1959, map 6.

Tunisia gained independence from France following a revolution in 1956 and was sympathetic to the FLN cause. As a result, the FLN also was allowed to stage out of Tunisia and quickly used Tunisian sanctuary to establish their general headquarters (Klonis 1972, 136). The establishment of a headquarters in Tunisia allowed the leadership of the FLN to plan and operate in relative safety.

Ironically, the early OS based its organizational structure on geographic boundaries established by the French. Accordingly, the FLN organizational structure was loosely based along the same regional, district, and locality lines as the French colonial government. The *Willayas* and subordinate military districts created by the FLN unintentionally mirrored those of the French government in Algeria.

The Vietcong

Vietcong was a name used by the US and South Vietnamese military referring to the armed insurgents and political dissidents fighting against the Republic of Vietnam during the Vietnam War from 1954 to 1975. The name was derived from a contraction for the Vietnamese phrase *Việt Nam Cộng Sản*, or Vietnamese Communist. Although the term Vietcong was originally intended to describe the guerrilla army of the National Front for the Liberation of Southern Vietnam or NLF, the term Vietcong has commonly been used to describe the entire NLF organization (Tang 1985, xi).

Insurgents in Vietnam established their organization in a similar manner to the FLN in Algeria. The origins of the Vietminh and later the Vietcong can be traced back to various communist and non-communist movements opposed to pre-World War II French colonial rule. The Indochinese Communist Party held its founding conference in 1930 and laid the early foundations for armed struggle combined with political action to cast off colonial rule. The Communist Party created the early self-defense units; these self-defense units would take the first actions of the armed struggle that years later would become the Vietcong (Pike 1986, 19).

As the Japanese occupation replaced French rule throughout Asia, early resistance groups began to ply their skills against Japanese forces as well. Operations against the Japanese occupiers linked organizations that previously had divergent agendas. Some of these resistance organizations were communist and some were not; the communist self-defense groups would eventually assume control of most of the resistance organizations in Vietnam and build them into a united front (Pike 1986, 25). A robust and sophisticated Vietminh emerged from World War II and declared Vietnamese independence in 1945.

The Vietminh later became the core of the NLF that battled the US backed government in South Vietnam. Douglas Pike's 1986 work *PAVN: People's Army of Vietnam* linked the Vietcong back to the earliest communist self-defense units and tied the Vietcong to the modern PAVN.

As early as 1940 in Vietnam, the communists began developing cells in youth organizations (Special Operations Research Office 1962, 31). The Vietminh communists brought their grass roots approach to insurgency building into the Vietcong. The Vietcong structure that eventually emerged was a hierarchy with influence down to the smallest villages and hamlets. The local cells that formed in villages were based on family, friends, and tribal relationships. In Trong Nhu Tang's 1985 *Vietcong Memoir,* the author discusses how his earliest contacts were childhood friends and coworkers. These relationships were exploited to expand the organization. In later years, a central committee was formed and it controlled a decentralized and flexible cellular structure with cells filtering down to the smallest villages (Special Operations Research Office 1962, 35). As the Vietcong insurgency matured into the ability to conduct guerrilla operations, a parallel military organization was formed. The military structure was organized on the local, regional, and national basis similarly to the Algerian insurgents (Special Operations Research Office 1962, 36). The Vietcong, like the FLN, relied upon relationships between family and friends to build their organization.

External support and external sanctuary were key pieces of the Vietcong insurgency structure. The government of North Vietnam essentially assumed command of the Vietcong insurgency as it matured. What emerged as the structure of the Vietcong

insurgency was a hierarchy (see figure 2) with the highest level coinciding with that of the PAVN and the North Vietnamese government (Pike 1986, 102).

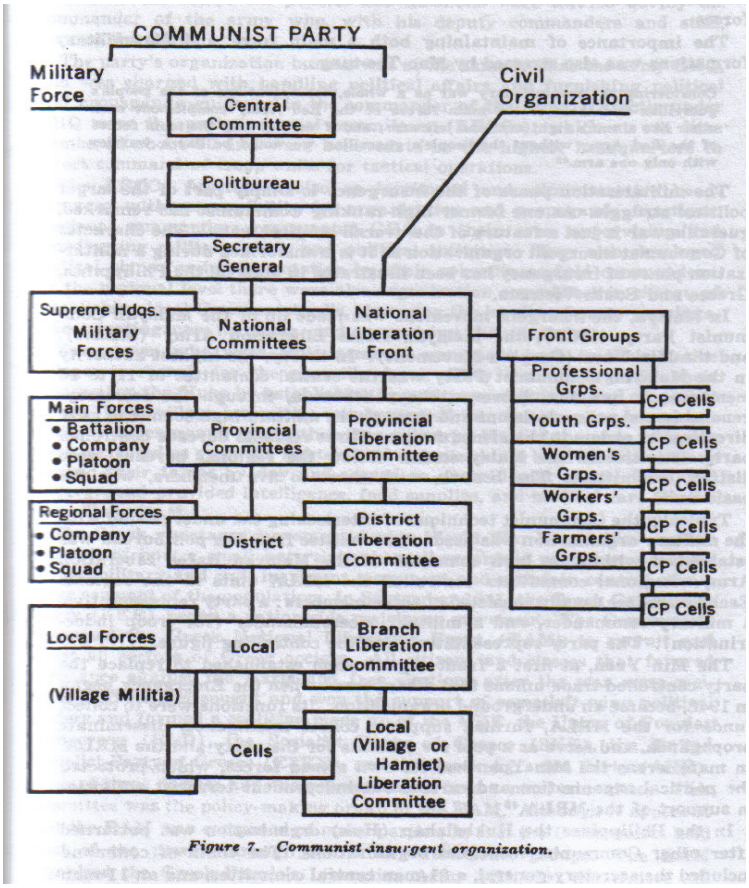


Figure 2. Organization of a Communist Insurgency
This hierarchical model is based on the organization of the Vietcong insurgency.
Source: Human Factors, Figure 7.

Like the FLN, the Vietcong did not start out as a homogenous organization and never became a homogenous organization. The Vietcong emerged as the most powerful of a wide assortment of groups opposed to the Diem regime. According to former Vietcong member Trong Nhu Tang, some members of suppressed religious groups like the Cao Dai and Hoa Hao affiliated themselves with the Vietcong. In Tang's 1985

Vietcong Memoir, he discussed bringing these people into the Vietcong, "Commander Vo Van Mon, leader of the Bihn Xuyen, along with his remaining troops, Major Mung of the Cao Dai sect and Colonel Muoi Tri of the Hoa Hao also brought their armed partisans into the movement. These of course were especially welcome, but so were the many others who formally joined at this time" (1985, 85). The Vietcong was not averse to involving criminal organizations such as black marketers in their efforts. The final Vietcong organization was actually a coalition of organizations sharing mutually beneficial interests.

The IRA

The Provisional Irish Republican Army (IRA) traces its origins back to the original revolutionary forces that fought for and achieved Irish independence the early 1900's. Although few IRA members had experience in the Irish war for independence, the IRA organization followed the model of the early Irish revolutionary organization. The Provisional IRA was structured as a hierarchy with an Army Convention, Army Executive, Army Council, Command, Chief of Staff, Northern Command and Southern Command. Additionally, the IRA had a quartermaster to oversee distribution of arms and ammunition. Although there was a formal chain of command, there were many individuals and cells that were influential, but did not have an official place in the hierarchy. These individuals assisted or conducted activities outside the formal chain of command (Bell 2000, 142). The IRA remains flexible; the subordinate cells are semiautonomous. According to J. Bowyer Bell in his work *The IRA, 1968-2000*, "The commanders do not as much command as oversee and build a consensus, engage in the diplomacy of control" (2000, 142). At the very bottom of the hierarchy were small cells

of anywhere from two to five personnel. The relationship between these individuals facilitated participation in the IRA organization. Like the FLN and Vietcong, the lowest cells of the IRA find their roots in personal relationships. Many IRA cells were inactive; they were part of the vast IRA underground. As security forces became more effective in Northern Ireland, a greater percentage of the IRA moved from active guerrilla type activities to the supporting auxiliary and underground functions. Bell also commented on this organizational flexibility,

> The IRA adjusts by scaling down operational size and so scaling down opportunities for active service. Much active service no longer consisted of an ambush or car-bomb but intelligence, preparing entry, protecting withdrawal, planning and maintenance and security. (2000, 138)

Although the IRA always maintained a vast structure, the organizational structure was primarily dictated by the current operational conditions and what Bell termed, "operational needs and possibilities" (2000, 139). This flexibility allowed the IRA to expand and contract as necessary to conduct operations.

The IRA was a hierarchy, but the top levels of the hierarchy did not necessarily dictate the actions of the lower levels of the hierarchy. The IRA command, the IRA Army Council, provided more direction and validation than command (Bell 2000, 141). Local units maintained considerable operational freedom. Much of the operational initiative in the IRA came from the smallest units; the Army Council only resolved disputes or provided consensus. Because of bottom-up initiative, there were few strategic decisions made except to persist (Bell 2000, 141).

The British-backed security forces in Northern Ireland could easily chart the command hierarchy or the IRA (see figure 3), but experienced difficulty when trying to decipher the inner workings of the operational cells. Personal relationships between

family, friends, and business associates created an organizational structure that was very difficult to define at the lowest level. It was difficult for the various security services to diagram the basic IRA cell on a diagram or association matrix. J Bowyer Bell also addressed this difficulty by saying, “The various concentrations within Republican movements often seem to keep their place and direction without touching--Brownian particles in constant movement but giving stability when viewed from a distance”(2000, 199).

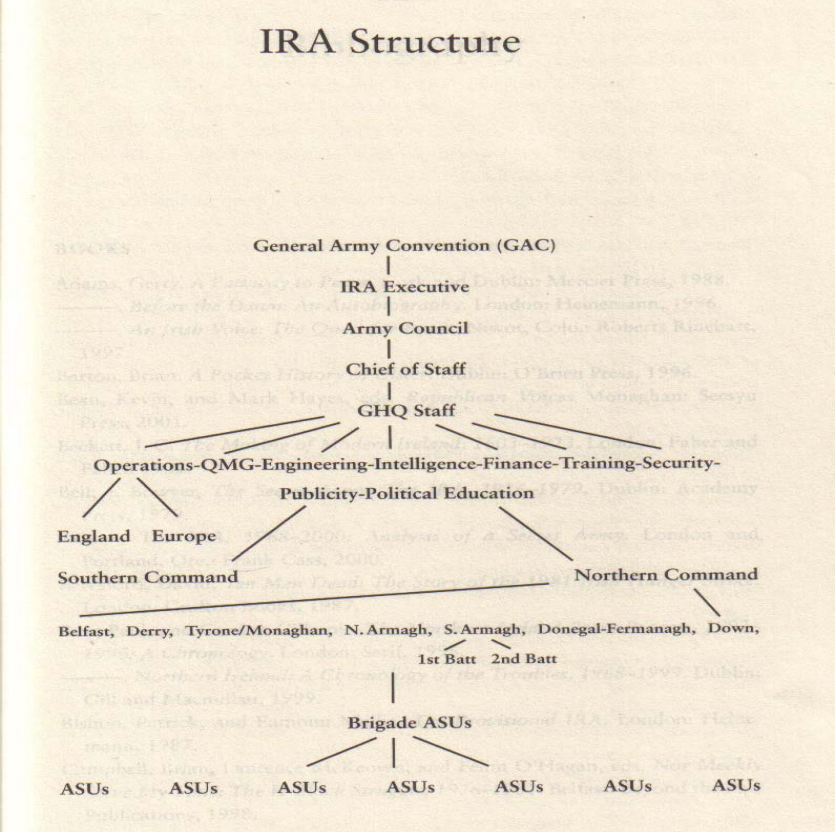


Figure 3. The Hierarchy of the IRA
The political and military lines are not separated as in other insurgencies.
Source: Moloney, 2002, 573.

Current Insurgent Group Structure

The Iraqi insurgency draws organizational structure from multiple sources to include former Iraqi government organizations, pre-existing religious organizations, criminal organizations, and routine personal and family connections. Like most insurgencies, the lowest levels of the Iraqi insurgency are composed of cells organized along lines paralleling prior personal relationships. One US Special Forces officer with knowledge of Iraqi insurgent operations lamented the fact that many of the cellular relationships were extremely difficult to decipher, reporting "they may be taking orders from a cousin or a guy in the next town they used to play soccer with; if they're not taking orders, they're certainly coordinating through these personal contacts" (Mohsen 2005).

The Iraqi insurgents have increasingly acted in an organized manner. The insurgency is constantly evolving toward a more unified command structure. A recent *Newsweek* article quoted Bush administration officials describing the Iraqi insurgency, "The fighters have created ties with pro-Saddam cells around the country using cell phones, word of mouth, messengers and spies inside Iraqi units set up by Americans forces, Bush administration officials said" (Nordland, Masland, and Dickey 2005, 20) .

The Iraqi insurgents also coordinated a series of bombings at the same time. Officials also indicated that many of the insurgents came from Saddam's Special Security Organization, The Special Republican Guard and the Fedayeen Saddam. All of these units worked in close coordination before the war (Scarborough 2003, 1). The insurgency shows additional evidence of roots in the former regime; Defense Secretary Donald H. Rumsfeld said on CNN's *Larry King Live* that the insurgency "has clearly been more

intense than had been anticipated." Rumsfeld said that "in many instances, the ones that are fomenting this insurgency" were members of the Sunni Iraqi Army division in the north that were not captured or killed because US troops could not invade through Turkey (Pincus 2005, 19). A recent Central Intelligence Agency estimate of the Iraqi insurgency illustrated a coalition of diverse insurgent groups working together, the elements of the insurgency include former Baathists, radical Sunnis, foreign fighters associated with Abu Musab Zarqawi, and even some convicts released by Saddam before the US-led invasion (Pincus 2005, 19).

Although former regime security and military organizations are cited as the genesis of the Iraqi insurgency, there are conflicting reports as to the organizational structure of the insurgency. A recent newspaper article quoted an unnamed official discussing the organization of the insurgency, "the insurgency in Iraq is organized in cells without the typical hierarchy of leaders and subordinates" (Pincus 2005, 19). This information has led some to believe that the Iraqi insurgency may be evolving into a network-centric organization. The 2004 Rand study, *Insurgency and Counterinsurgency in Iraq*, reinforced this theory when it indicated that the organization of the Iraqi insurgency was difficult to ascertain because it was using sophisticated and difficult to trace information technology to network its members and control its operations (Hoffman 2004, 10)

Newsweek speculated that Saddam organized the Iraqi insurgency before he was deposed,

> Since the aftermath of his defeat in the 1991 gulf war, Saddam had started preparing secret cells of younger officers from his military and intelligence

> services. Later, some of these officers would provide core leadership in the resistance. (Nordland, Masland, and Dickey 2005, 25)

According to *Newsweek,* Saddam Hussein likely conducted activities more than just organizing cells; "he [Saddam] assigned a series of tasks to the organized resistance" (Nordland, Masland, Dickey 2005, 26). The pre-organized insurgent cells received further motivation to begin insurgent activities when the United States administrator issued the order to completely dismantle the Iraqi armed forces. Thousand of Iraqi officers were left without the means to support themselves and their families

The heterogeneous elements of the Iraqi insurgency have undergone conflict while evolving into a unified insurgency. An example of the conflict between Iraqi insurgents is that of foreign fighters and local Iraqi insurgents. Foreign fighter, Jordanian Islamic extremist and Al Quaeda member, Abu Musaab al Zarqawi, was documented disparaging the commitment and abilities of Iraqi Sunni and Shiite insurgent groups. These comments were a demonstration of the conflict in goals and techniques that caused different insurgent groups in Iraq to work in divergent directions. Like historical insurgencies, these disputes have been resolved and the insurgent groups are now working together. Zarqawi has united with the groups he was formerly criticizing and coordinated his efforts with those groups. Further coordination of Iraqi insurgents has been seen between religious insurgents and former regime elements or Baathists. The Baathists have taken a leadership role coordinating Iraqi insurgent groups; recent reports indicate that the Baathists and are likely emerging as the most powerful Iraqi insurgent group (Nordland, Masland, and Dickey 2005, 21).

The 2004 Rand study on insurgency in Iraq depicts the Iraqi insurgency as a network-centric organization without a center of gravity and without a chain of

command. Discussion of the network-centric model is also found in other news articles and periodicals discussing the Iraqi insurgency. In Iraq, vastly different organizations with differing goals form a loose network dedicated to attacking enemy forces. In this scenario, the insurgents may even work with organizations that they formerly had been apposed to.

The network-centric insurgency draws its strength from the fast sharing and dissemination of information (Hoffman 2004, 21). Computers and cell phones enable this capability. In Iraq, these capabilities are contributing to the networking of varied insurgent groups. The Rand study theorizes that US doctrine developed to counter an insurgency that can be diagramed and easily charted is ineffective; today's insurgency cannot be diagramed and charted. In Iraq, there is no readily identifiable insurgent chain of command that can be systematically dismantled, as the French were able to do against the FLN in Algeria.

A recent *Newsweek* expose on the Iraqi insurgents depicts a loose coalition of insurgent groups coalescing into a highly networked organization. The wide varieties of groups composing the Iraqi insurgency are depicted and an emerging hierarchy among these groups is depicted as well.

Insurgent Use of Information Technology

The FLN

Communication was essential for the FLN but always presented problems. The French had the technical means to monitor any FLN electronic communications. French technical superiority caused the FLN to rely less on electronic communications and more on personal contacts. Word of mouth and messengers became the safest form of

command and control for the FLN; this network was known as the “grapevine telegraph” (Clark 1959, 154). Events and messages were passed along the grapevine telegraph by a variety of informal means such as: pamphlets, radio broadcast, and personal contact such as taxi drivers moving between towns.

The FLN had become completely dependent on personal contact for coordination and communication, but this from of command and control was not without danger; the French security service was very efficient and used informants to discover FLN plots and monitor routine movement. The FLN was so concerned with French human intelligence (HUMINT) capability that it established an internal security apparatus to discover informants and ensure secure communication down to the lowest levels of the organization. The organization was the Committee of Coordination and Execution (CCE). According to O’Balance, the CCE was established in 1956 to “ensure smooth working liaison between the wilayas, and to ensure that all followed the master plans decided upon” (O’Balance 1967, 47). Before the CCE was developed, communication to the *willayas* was scarce and unsecure; the *willayas* operated with too much autonomy to conduct coordinated activities. In addition to security, the CCE would coordinate the actions of the *willayas* and resolve disputes (O’Balance 1967, 72).

Because personal contact was critical to the FLN, meetings were an important part of FLN command and control. According to Clark, “Periodic meetings were part of the nationalist apparatus at all levels”(1959, 57). In addition to meetings, general directives were sent out to each *willaya* by messenger monthly. In 1953, the FLN communications system was compromised when the French intercepted a series of general directives and three secret reports from the Constantine *Willaya*. Illustrating FLN

concern about the security of their communications, the directives contained instructions to the receiver to burn the documents as soon as possible (Clark 1959, 57). The FLN also attempted to use codes to insulate their communication from further compromise. The CCE produced books instructing FLN members in the use of secret codes. Some of theses instruction books were later confiscated in raids by French authorities (Clark 1959, 65).

The FLN also used leaflets and newspapers as a means to influence and control the Algerian population. These were created using mimeograph machines and clandestine printing presses (Special Operations Research Office 1962, 245). Running clandestine printing presses within Algeria presented security problems as well causing the FLN to move their printing activities outside of Algeria. Some FLN propaganda was even printed in European printing plants. *Victory Bulletins,* FLN newspapers, were printed in a clandestine plant in Belgium (Clark 1959, 65).

When it came to radio broadcast, the FLN was confined to using external radio transmitters because the French controlled the 12 radio stations in Algeria (Special Operations Research Office 1962, 245). The radio broadcasts sometimes included coded instructions to FLN field units and information designed to influence the Algerian population.

Because the French essentially denied modern telecommunications to the FLN, the FLN actively sought to gain communications parity with the French by denying them the use of telephones and telegraphs. As the insurgency continued, the FLN began to attack the government communications infrastructure. FLN attacks on telephone and telegraph lines became commonplace. According to Michael Clark, “The number of acts (of sabotage) involving roads and telephones and telegraph lines increased from sixty-

four in April (1955) to 250 in May" (1959, 154). FLN attacks on French lines of communication may have been an indicator of the effectiveness of French operations.

The Vietcong

The organizational structure of the Vietcong was an evolution of earlier insurgent groups dedicated to removing French colonial rule. The command, control, and communication techniques of the Vietcong were also based on the experiences of these earlier insurgent groups.

As early as the 1920s Vietminh rebels began to organize propaganda campaigns from external bases opposing French rule (Special Operations Research Office 1962, 30). According to the Special Operations Research Office, the Vietminh used "whispered propaganda, conferences, assemblies and meetings, directed discussions led by specialists, rumors, pamphlets, radio, and plays" to indoctrinate and control the people (Special Operations Research Office 1962, 39). The Vietcong later used these techniques.

The North Vietnamese government and the Vietcong were closely tied by their Vietminh origins. Following the Vietminh victory over the French in 1954, Vietnam was partitioned into communist North Vietnam and noncommunist South Vietnam at the Geneva Conference. The communist leadership of the Vietminh became the leaders of the North Vietnamese government while in the south, non-communist forces formed the government. Communist Vietminh members remaining in the South and wishing for reunification with the North soon formed the NLF and later the Vietcong. The NLF and Vietcong would rely on their Vietminh brothers in the North to support their efforts.

The North Vietnamese government provided excellent support to the Vietcong; the Vietcong were given the equipment and supplies needed to wage a guerrilla war

including Chinese and Russian made equipment capable of intercepting US and South Vietnamese communications. This communications equipment was used to predict US and South Vietnamese troop activities; often the Vietcong used intercepted communications to successfully elude South Vietnamese and US Forces (Knoeble 1967, 105).

The Vietcong also became experts at utilizing captured US communications equipment which they found plentiful and easy to obtain. In Kuno Knoeble's 1967 book, *Victor Charlie,* the author examines the issue of pilfered and captured US equipment. A lucrative black market in Saigon became the ultimate destination for lost, stolen, and captured US communications gear. Even items as large as printing presses and mimeograph machines found their way to the black market. Knoeble stated that, "The presses come from US supplies and are bought easily on the Saigon black market" (1967, 105). The black market did not confine itself to tactical communications alone, sophisticated radio transmission equipment was also stolen from US supply depots and eventually came into Vietcong hands. This high-powered transmission equipment was used to establish clandestine radio stations for local command and control and to augment the efforts of external transmitters like radio Hanoi (Knoeble 1967, 104).

The earliest form of strategic communication command and control took place by telephone. In *Vietcong Memoir,* Truong Nhu Tang discussed how he was able to use the telephone in his office to communicate with other Vietcong members. He found that his high ranking position within South Vietnamese society allowed him to easily coordinate his subversive efforts with other Vietcong members who also high ranking members of South Vietnamese society. Much of the early communications between Tang and his

Vietcong compatriots was by telephone. As the South Vietnamese security service began a concerted effort to monitor telephone communications, Tang and his friends resorted to using simple codes. Eventually, telephone monitoring made this form of communication too dangerous and the insurgents moved back to using personal contact to ensure security (Tang 1985, 70.)

The IRA

The IRA recognized the difficulty of command and control of a dispersed insurgent organization. The IRA leadership attempted to convey broad principles, a kind of commander's intent, to lower echelons. Under ideal conditions, the operational cells could operate with autonomy; the cells would execute the intent of the IRA leaders. IRA members were aware of the guiding principles of the movement and during routine operations would know what actions to take without guidance from the top. Situational changes were the events that caused operational cells to seek guidance from central headquarters. Sometimes the relative autonomy of IRA operational cell caused consternation in the IRA central commands. IRA operational cells sometimes conducted operations that even surprised their own headquarters. For this reason, the IRA had to communicate and they did so through telephone, radio, and messenger (Bell 2000, 199).

The IRA constantly wrestled with communications problems. They realized that any communications had to be covert, but even covert communication was risky. The biggest concern to the IRA was government dominance of the communications system. In *The IRA, 1968-2000,* J. Bowyer Bell discussed IRA concerns about communication. He found that the IRA was acutely aware of government advantages. The IRA operated at a technical and asset disadvantage; government capabilities included an endless supply

of radio cars, spotter planes, and the ability to monitor every telephone (Bell 2000, 200). This technical deficit forced the IRA back to the most basic forms of communication. The IRA translated their well-grounded fears of monitored communications into an official organizational policy essentially forbidding members from using modern telecommunications systems. In his 2002 book, *A Secret History of the IRA*, Ed Moloney describes a paranoid IRA leadership that espoused, "no telephones, no cables, no computer net" (2002, 339). Like other insurgent groups, the IRA concluded that personal contact and low technical means were the safest means to communicate. IRA members more commonly used notes and memory and public transportation before making a telephone call (Moloney 2002, 339).

As the IRA moved away from using electronic communications for command and control, British and Irish authorities sought to monitor the meetings and personal contacts that became the IRA's primary means of command and control. Early police efforts to monitor IRA meetings were unsuccessful. An early bugging device placed inside IRA headquarters was so large and cumbersome that it fell from beneath the table it was mounted in the middle of a Sinn Fein meeting. Although this incident was humorous for the IRA members present, the incident underscored the security that was needed to conduct secure communications (Bell 2000, 200)

Occasionally, the IRA still used the telephone for very specific purposes. In these cases, the IRA simply counted on the boredom of government phone monitors and the overwhelming volume of messages. The monitors at the time underestimated the IRA and thought of them as stupid. The IRA referred to this as the *Paddy Factor*, which they often used to their advantage (Moloney 2002, 339).

Current Insurgent Use of Information Technology

The current insurgency in Iraq differs little from past insurgencies in a desire to exploit whatever advantage they can over their enemy. Modern communications technology has not escaped notice of the insurgents; a review of literature concerning the Iraqi insurgency clearly confirms that the insurgents are utilizing information technology.

Examples of insurgent use of modern information technology abound in the press. Daily coalition press reports detail the capture of modern communication technology from the insurgents. A typical coalition press release from early 2004 detailed the capture of insurgents and the modern communications technology they had in their possession. "Members of the Muqtada militia were captured in May 2004 with cell phones, computers, and documents" (CJTF 7 press release 040510). An interview with US Special Forces officer working to counter the Iraqi insurgency reinforces the fact that Iraqi forces are using technology. He commented, "The insurgents are definitely using cell phones and to a lesser extent computers" (Mohsen 2005).

Insurgent use of modern technology seems to be an inevitable consequence of the introduction of this technology into Iraq. The cell phone has become a common accessory for Iraqi citizens. Average Iraqis have begun to use cell phones in their daily lives while the same cell phone system has become the primary means of communication for members of the current Iraqi government (Scarborough 2005, 1).

Following the US invasion of Iraq, the cell phone system was one of the first contracts awarded by the US installed Civilian Provisional Authority (CPA). Because the pre-invasion Iraqi phone system was in a state of disrepair from both coalition military action and years of neglect by the Hussein regime, the CPA decided that a modern cell

phone network could be established faster and cheaper than could rehabilitation of the existing phone network. The CPA set out to quickly establish a national Iraqi cell phone network and poured minimal assets into the existing landline system to immediately restore limited telephone service. A contract was awarded for three companies to construct interconnected networks in the north, middle, and southern regions of Iraq.

The CPA's efforts to establish a cell phone system were quite successful. The newly established Iraqi cell phone system now provides nationwide service and has become the rival of neighboring states (Iraq Cellular Operators 2004, 13). Cell phone service has reached Iraqis in the smallest towns and is now more common than landline service (Iraq Cellular Operators 2004, 13). As the cell phone became the primary means of telecommunication in Iraq, cell phones were exploited by insurgent forces against the US and its allies. Because cell phones provide such mobility and are more difficult to monitor than landlines, many analysts have projected the cellular phone network in Iraq as the communications base for a network-centric insurgency. The capture of cell phones in the hands of insurgents has confirmed these suspicions.

In addition to cell phones, Iraqi insurgents have been captured with computers capable of using the Internet. The Internet has provided the Iraqi insurgency another method for command, control and communications that was not available to historical insurgencies. Electronic mail, websites, and web-logs are methods commonly employed to communicate on the Internet. Iraqi organizations and citizens have constructed websites and have posted web logs or blogs by Iraqi citizens. These blogs are essentially diaries that are posted online for others to look at. Iraqi blogs discuss the activities and perceived shortcomings of US forces. Iraqi websites and blogs demonstrate that Iraqis

posses the ability to utilize the Internet. It is not hard to imagine that these blogs could also be used as a means of command and control by using coded messages.

Similarities between Insurgent Groups

All of the insurgent groups examined shared structural and procedural similarities. At the lowest level, historic insurgent groups organized along lines that were established prior to the action of insurgents. These groups established their lowest level cells through religious, tribal, business, and family relationships. These relationships became the building blocks for the hierarchy that each of these insurgencies eventually matured into. The Iraqi insurgency displays similar characteristics. The lowest level of the Iraqi insurgency consists of personal relationships; this informal networking has proven problematic to forces attempting to battle the insurgency.

Another structural similarity between the historic and current insurgencies is the theme of external support. In all the historical insurgencies, the highest levels of the insurgent organization sought support and sanctuary outside the contested area. Current indications from Iraq are that the insurgent leadership is likely located in sanctuary countries, like Syria, Iran, and even Saudi Arabia.

Another structural similarity between the historical insurgencies was the consensus building amongst disparate groups. The FLN, Vietcong and, to a lesser extent, the IRA were actually a coalition of groups. The insurgencies all formed when one group among different religious, political, and even criminal groups emerged as most powerful and united the different groups through compromise, coordination, and intimidation. The historical insurgencies were actually a coalition of insurgencies united to battle a common enemy. In Iraq, various insurgent groups conduct operations against US and

coalition forces. The Iraqi insurgency is composed of former Baath party members, Sunni and Shiite religious organizations, external forces, and opportunistic criminal organizations. The most powerful organization amongst these groups is the Sunni Muslims led by the former regime leadership (Nordland, Masland, and Dickey 2005, 26). These disparate Iraqi insurgent groups are only now forming a coalition to battle US coalition, and the new Iraqi government forces.

To command and control, all historic insurgent groups made limited use of available information technology. Each of the historical groups studied attempted to use radio and telephone communications with limited success. Although electronic telecommunications were used, the historical insurgent forces always reverted to personal contacts and couriers to command and control their organization. In the case of the IRA, Vietcong, and FLN, use of telecommunications was risky because opposition forces were able to intercept communications. Historically, intercepted radio and telephone communications resulted in operational setbacks.

Similarly, the Iraqi insurgency has sought to exploit available information technology. Iraqi insurgents have used cell phones and computers for command, control and communication. US and coalition forces have used overwhelming technological superiority to intercept insurgent communications. Following setbacks suffered as a result of intercepted communications, the Iraqi insurgency has grown wary of using modern telecommunications. The Iraqi insurgents are aware of US superiority in signal intelligence; the insurgents avoid using cell phones and computers for command and control, but they constantly strive to regain use of telecommunications through codes, encryption programs, and other untraceable forms of electronic communication.

One aspect of information technology exploited successfully by historical insurgent groups was an external radio station. External radio stations allowed insurgent leadership to command and control forces and also allowed the insurgency to transmit a desired message to their target populations. In Iraq, external radio transmissions are not as important to the insurgency as external television transmissions. Satellite television broadcast from outside Iraq is the natural evolution of the external radio transmitter. Satellite news outlets like Al Jazeera, Al Arabia, and even CNN serve as means of spreading propaganda and perhaps even command and control.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Insurgent forces have not changed the manner in which they command and control and have not altered their organizational structure due to new technology. The insurgency in Iraq is a developing hierarchy; every insurgency is different, but the Iraq insurgency is already displaying characteristics very similar to historical insurgencies. The more information that becomes available concerning the Iraqi insurgency, the more it resembles historical insurgencies.

1. The Iraqi insurgency is attempting to exploit available information technology, but the overwhelming superiority of the US and coalition forces in this arena have forced the insurgents to resort to traditional methods such as notes and messengers. The historical insurgencies studied in this work also encountered this problem and resorted to basic personal contact like the Iraqi insurgency.

2. The Iraq insurgent leadership uses the sanctuary provided by countries like Syria and Iran to avoid capture by US and coalition forces. The top levels of the historical insurgencies all exploited the sanctuary of bordering countries.

3. The Iraqi insurgency is exploiting global media as an information tool and possibly a command and control tool. This is the natural evolution of the external radio transmitter that was a common feature for many historical insurgencies.

4. The Iraqi insurgency receives external support from neighboring countries and non-state actors like terrorist groups. Each of the historical insurgencies received support

from external sources such as foreign governments and, in the case of the IRA, independent groups within the United States.

5. At the lowest levels, the cellular structure of the Iraqi insurgency is difficult to decipher for coalition intelligence personnel. Historically, the lowest level cells of the insurgent organization have been very difficult to chart. Personal, family, and prior business relationships become the building block of the insurgent organization and cannot be deciphered by technical means alone.

US and coalition forces have tried to apply overwhelming technology to counter the Iraqi insurgency, but history indicates that the insurgency will not be defeated by technology. History is an excellent guide when examining insurgency, but unfortunately, history has largely been ignored in the prosecution of the counterinsurgency operation in Iraq. A cursory glance at any of the historical literature on insurgency would lead counterinsurgency planners in Iraq to re-examine US counterinsurgency strategy and tactics. The US counterinsurgency strategy has thus far concentrated on technical solutions while historical counterinsurgency forces achieved their greatest successes through non-technical means.

The internal security and military elements in Iraq were a ready-made insurgency. The US strategy of dismantling these organizations planted the seeds of the current insurgency in Iraq. The rapid movement of this insurgency into the guerrilla warfare phase surprised US policy makers. The initial US inclination was to look for the easy solution, a solution that played to the strengths of US technology and firepower because US forces are trained and resourced to conduct high-intensity conventional combat operations. Reinforcing US strategy were reports and articles that depicted the insurgency

as a technology enhanced network without any definitive structure. The US believed that if technology was the key to the organization of the insurgent network, the US could easily neutralize this capability with superior technology and overwhelming firepower. Unfortunately, technology is not the key for countering this insurgency; better technology and greater firepower will not neutralize Iraqi insurgents.

The organization of any insurgency remains intentionally murky. An insurgency must conceal its organization to survive. The secrecy involved in the formation and maintenance of an insurgency makes it slow to develop and difficult to discern, so difficult to discern that the casual observer could conclude that the insurgency was a disorganized mob that just happen to be conducting complementary operations. The Iraqi insurgency is no different; family ties, prior business associations, tribal affiliation, and even the mosque attended link insurgent groups. These associations are very difficult to discern and combat especially in a limited amount of time.

Conclusions drawn by recent studies depict a disjointed, semi-autonomous, network-centric insurgency in Iraq. This model supposes that the insurgency in Iraq is actually multiple different insurgencies without a definitive leadership. These studies ignore the numerous indicators that the insurgency is migrating toward a traditional hierarchy. The network-centric insurgency that survives on the momentum of actions seen through the media and coordinated through the Internet without the need for a higher command disagrees with all of the documented history concerning insurgency.

An examination of the Iraqi insurgency reveals familiar insurgent patterns. The organizational phase was abbreviated and only lasted a brief time following the US led invasion. In the Iraq insurgency's organizational phase, actions that were later learned to

be insurgent activity were attributed to routine criminal activity. In the words of Secretary of Defense, Donald Rumsfeld, initial activity was nothing more than the desperate acts of "dead enders." The insurgency was already in place and was in the process of collecting intelligence on US forces, consolidating weapons and ammunition, and furthering organizational processes.

The quick US victory and the immediate dismantling of the Iraqi internal security apparatus, the Iraqi military, and the Iraqi police created an abbreviated organizational phase for the insurgency. Command and control apparatus was already in place, leaders were present, and weapons were on hand, all that was needed was a brief period of coordination before the insurgency could begin conducting guerrilla warfare. Saddam Hussein created a police state with an extremely efficient internal security mechanism. The internal security forces of Iraq specialized in countering opposition groups; these security forces had the means and desire to quickly form into a clandestine underground apparatus for an insurgency.

The command and control of the Iraqi insurgents remains undefined. Recent reports indicate that several different groups are operating independently with common goals. The elements of the Iraqi insurgency are still vying for control of the insurgency. Among the groups opposing the US occupation, other than former regime members, are religious organizations, external and internal political groups, criminal organizations, and external terrorist groups. Following historic precedents, each of the organizations desires to control the total Iraq insurgency.

Successful insurgent groups share one common quality, flexibility. Flexibility allows insurgent groups to quickly adapt to emerging opportunities. The technology that

is available to insurgent groups today represents an emerging opportunity that cannot be passed up. Insurgent groups will always seek to make use of information technology, but the question then remains as to the impact of information technology on the command and control of insurgent groups. Information technology is definitely utilized by insurgent groups, but has not been adapted so readily as to change the command and control of insurgent groups.

Throughout recent history, there are numerous examples of insurgent groups using information technology for command and control. The use of the external radio transmitter is a common theme throughout history. As an extension of the absolutely necessary external support that is required for an insurgency to survive, the external radio station offers the insurgent the means to influence the population, mobilize forces, and even command and control his forces. In Vietnam, Radio Hanoi served this purpose for the Vietcong, in Algeria, external radio stations in Cairo and Tunis facilitated these functions as well. In Iraq, international media beamed into Iraq by satellite television serves the same purpose for the Iraqi insurgency. Intentionally or unintentionally, televisions stations like Al Jazeera, Al Arabia, and even American stations, like CNN and Fox News, can be manipulated by insurgent groups.

Advances in telecommunications are another facet of information technology that invariably attracted insurgent attention. In Vietnam, the Vietcong leadership made use of the available telephone system, the IRA was routinely monitored by British security forces utilizing telephones and the FLN attempted, unsuccessfully, to use the telephone for command and control. In Iraq, there is no doubt that the insurgents utilize the telephone system, but U.S. and coalition forces are likely monitoring them. In almost

every historical case of insurgent groups using the telephone there are an equal number of historical cases of government counterinsurgency forces monitoring insurgent phone calls. The insurgent group that uses the phone system quickly learns that the government generally can monitor this means of communication. In Iraq, US and coalition forces built a countrywide cellular phone network that has virtually replaced the landline as the most common means of telecommunication in Iraq. Today, this system is available to every Iraqi, but is avoided by the insurgents. A US Special Forces officer operating in Iraq explained why insurgents avoid the cell phone for command and control by saying, "the insurgents rarely use the telephone for important business; they are scared of our ability to intercept their communications" (Mohsen 2005). This is probably a wise assumption based on historical models and the fact that the US and coalition forces built, operate and control the telephone system.

In Vietnam, Northern Ireland, and Algeria, insurgent groups all realized that the most secure technology for command and control was not technology at all. The insurgents, all with access to phones and radios, concluded that the safest form of communication was personal contact. A courier cannot be intercepted by the most sophisticated signal intelligence (SIGINT) means, a secret meeting cannot be monitored, and a whisper in the ear of a comrade cannot be deciphered by the most sophisticated code breaking program. Insurgent groups in Iraq understand the US ability to conduct SIGINT. SIGINT is a US and coalition strength, an insurgency seeking to remain an asymmetric threat to US and coalition forces would be foolish to concentrate command and control in a form of communication in which their adversary is much more powerful. As long as the US and coalition maintain their efforts to intercept and monitor Iraqi

communications, insurgents will continue to avoid modern information technology as a means of command and control.

The Internet was not available to historical insurgencies. Evidence from the battlefield of Iraq suggests that the insurgents are using computers. Computers have been discovered in insurgent strongholds, insurgent supporters have established web sites, and the insurgents even released propaganda video over the Internet. Clearly, the computer is used as a means of spreading the word of insurgent activity to the outside world, but command and control is an area where the computer will not be as useful.

The current Iraqi Internet is largely dependent on the government established and run telecommunications system. Emerging commercially available computer encryption programs have doubtlessly led the Iraqi insurgents to exploit computer technology. Once again, like the cell phone system, the government forces will excel in the area of computer intercept and the neutralization of encryption technology. Like the telephone, the insurgents will exploit the computer until it becomes too dangerous to do so. Insurgent forces have likely already suffered the consequences of careless Internet communication.

The pattern seen through history is that insurgents initially exploit information technology until government forces inevitably discover insurgent activity and use superior resources to neutralize insurgent ability to use technology. The Iraq insurgency clearly shows signs of following this historical pattern.

Recommendations

Counterinsurgency is not a battle of advanced technology; it always has been and always will be a struggle between people. The Iraqi insurgency is the “classic guerrilla”

organization as stated by United States Central Command Commander General John Abizaid. The counterinsurgency commander in Iraq can take the following actions to attack the Iraqi insurgency:

1. Interfere with nontechnical insurgent communication. The Iraqi insurgents utilize personal contact for command and control; the counterinsurgency commander must attack personal contacts and relationships. Insurgent cells resemble the criminal organizations that police agencies have combated worldwide for years. The police have used money, informants, and even blackmail to dismantle organized crime. Local commanders in Iraq must be empowered with the ability to take these police type actions; they must be given the disposable money that is needed to interfere with human based organizations. The Army will spend millions on technical intercept while denying local commander the money needed to interfere with insurgent operations.

2. Continue to thwart insurgent efforts to utilize technology. Jamming and monitoring of local cell phone networks will continue to interfere with insurgent efforts to exploit this means of communication. The local counterinsurgency commander should never permit radio or cell phone communication to continue in an area where he is about to conduct a direct action attack. Routine jamming and outages of these systems will condition insurgent forces to not associate electronic communications outages with attacks.

3. Thwart consolidation of insurgent groups. The Iraqi insurgency, although conducting attacks everyday, is still suffering the growing pains of an immature insurgency. Similar to the historical insurgencies, factions within the Iraqi insurgency are battling for control, while still attacking a common enemy. The counterinsurgency

commander must discern the strong insurgents from the weak. Priority of effort should be given to actions that will neutralize the most powerful insurgent groups while information efforts must be targeted at keeping divergent groups at odds. The Iraqi insurgency, left to its own devices, will form a single insurgency. The most powerful insurgent group will emerge as a leader; all other weaker groups will align themselves with the powerful group or be destroyed.

5. Develop long-term human intelligence capability. The low-technical solution has always been the solution that proved most successful for counterinsurgency forces. The US must increase investment in HUMINT to succeed in countering the Iraq insurgency. This is a daunting challenge in a country that speaks Arabic, but a necessity to combating this insurgency. A concerted effort must be made by US commanders to establish the low technical human intelligence network that will ultimately undermine the Iraqi insurgency. An excellent start has been the placement of US advisors with Iraqi units. Along with empowering these units to fight, US advisors gain valuable intelligence from Iraqi forces with ties to the local population, but this must be a long-term effort if it is to succeed. In the absence of a massive influx of native Arabic speakers into the US military, long term human intelligence assets must be recruited from the local population and neighboring Arabic countries. Only native Arab personnel will be able to develop the long-term human intelligence that will ultimately dismantle the Iraqi insurgency.

Personal contact has always been critical for insurgent command and control. In the last sixty years, insurgents operated in a period of explosive progress in communication and information technology, but remained remarkably nontechnical. Insurgents witnessed the advent of radio, telephones, wireless telephones, and the Internet

but always reverted to personal contact because the state could monitor and disrupt technical communication. Insurgents used personal contact out of necessity and not by choice; historical insurgents used nontechnical communication to survive, the Iraqi insurgency is no different. Iraqi insurgents will stay low-tech to survive and will not be defeated by highly technical solutions. Only a concerted HUMINT effort by US and coalition forces can disrupt the command and control of the Iraqi insurgency and ultimately cause its defeat.

REFERENCE LIST

Associated Press. 2005. Cell Texting IDs Bad Guys. *New York Daily News*, 23 January, 1.

Bahmueller, Charles F. 2000. *World Conflicts and Confrontations.* Vol. 2, *Africa*. Hackensack, NJ: Salem Press.

Bartz, Daniel D. 2004. Electronic mail interview by author, Ft. Leavenworth, KS, 19 December.

Bell, J. Bowyer. 2000. *The IRA, 1968-2000.* London: Frank Cass.

Cellphones set to outpace fixed lines in Iraq. 2004. *Khaleej Times* (Dubai), 18 March, 9.

CJTF 7 press release 040510. Available from http://www.mnf-iraq.com/media-information/news-releases.htm. Internet. Accessed 11 October 2004.

Clark, Michael K. 1959. *Algeria in Turmoil: A History of the Rebellion*. New York: Frederick A. Praeger, Inc., Publishers.

Cordesman, Anthony H. 2004. *The Developing Iraqi Insurgency: Status at End 2004* (Working Draft). Washington, DC: Center for Strategic and International Studies, 22 December.

Department of the Army. 1966. DA PAM 550-104, *Human Factors Considerations of Undergrounds in Insurgencies.* Washington, DC: Government Printing Office.

_____. 1998. FM 31-22, *U.S. Army Counterinsurgency*. Washington, DC: Government Printing Office.

_____. 2004. FMI 3-07.22, *Counterinsurgency Operations.* Washington, DC: Government Printing Office.

Diamond, Larry, Mark Plattner, and Daniel Brumberg. 2003. *Islam and Democracy in the Middle East.* Baltimore and London: The Johns Hopkins University Press.

Director, Force Transformation. Office of the Secretary of Defense. 2005. *The Implementation of Network-Centric Warfare*. Washington, DC: Government Printing Office, 5 January.

FM 3-07.22. (interim) 2004. *See* Department of the Army. 2004.

Heilbrunn, Otto. 1963. *Warfare in the Enemy's Rear.* New York: Frederick A. Praeger Publishing.

Hoffman, Bruce. 2004. *Insurgency and Counterinsurgency in Iraq*. Arlington, VA. The RAND Corporation, 1 June.

Iraq cellular operators currently enjoying a period of rapid increase in subscribers. 2004. *The Daily Star* (Beirut), 10 March, 13.

Iraq's telecommunications sector set to be the best. 2004. *The Daily Star* (Beirut), 20 March, 11.

Iraqi Forces Hold Hussein-Era General Suspected in Plots. 2005. *Baltimore Sun,* 7 February, 1.

Jane's Information Group. 1999. *Jane's World Insurgency and Terrorism*. Alexandria, VA: Jane's Information Group.

JP 1-02. *Department of Defense Dictionary of Military and Associated Terms.* Available from http://www.dtic.mil/doctrine/jel/doddict/. Internet. Accessed 10 November 2004.

Klonis, N .I. 1972. *Guerilla Warfare: Analysis and Projections.* New York: Robert Speller and Sons Publishers, Inc.

Knoeble, Kuno. 1967. *Victor Charlie*. New York: Frederick A. Praeger Publishers.

Knox, MacGregor and Murray, Williamson. 2001. *The Dynamics of Military Revolution 1300-2050*. New York: Cambridge University Press.

McDonnell, Patrick J. 2005. Iraqi Insurgency Proves Tough to Crack. *Los Angeles Times,* 26 January, 1.

_____. 2005. U.S. Apparently Underestimated Size of Insurgency, Top Commander Says. *Los Angeles Times,* 27 January, 1.

Mohsen, Gregory M. 2005. Electronic mail interview by author, Ft. Leavenworth, KS, 21 January.

Moloney, Ed. 2002. *A Secret History of the IRA.* New York: W. W. Norton and Company.

Moreno, J. 1975. *The Guevara on Guerilla Warfare: Doctrine, Practice, and Evaluation.* Chicago: Precedent Publishing Inc.

Moss, Robert. 1975. *Urban Guerilla Warfare*. Chicago: Precedent Publishing, Inc.

Nordland, Rod, Tom Masland, and Christopher Dickey. 2005. Unmasking the Insurgents. *Newsweek,* 7 February, 20-29.

O'Balance, Edgar. 1967 *The Algerian Insurrection, 1954-62.* Hamden, CT: Archon Books.

Paget, Julian. 1967. *Counter-Insurgency Operations.* New York: Walker and Company.

Pike, Douglas E. 1986. *PAVN: The People's Army of Vietnam.* Novato, CA: Presidio Press

Pincus, Walter. 2005. CIA Studies Provide Glimpse of Insurgents in Iraq. *Washington Post,* 6 February, 19.

Ronfeldt, David, and John Arquilla. 2001. Networks, Netwars, and the Fight for the Future. *First Monday* 6, no. 6 (October 2001). Available from http://firstmonday.org/issues/issue6_10/ronfeldt/. Internet. Accessed 12 December 2004.

Sageman, Marc. 2004. *Understanding Terror Networks.* Philadelphia, PA: University of Pennsylvania Press.

Sarkesian, Sam C. 1975. *Revolutionary and Guerilla Warfare*. Chicago, IL: Precedent Publishing, Inc.

Scales, Robert H. 2005. Human Intel vs. Technology. *Washington Times,* 3 February, 21.

Scarborough, Rowan. 2003. Organized Iraqi rebels coordinate strikes. *Washington Post,* 17 November, 1.

_____. 2005. Cell-Phone Technology: An Explosive Tool for Insurgents. *Washington Times,* 7 March, 1.

Special Operations Research Office. 1962. *Casebook on Insurgency and Revolutionary Warfare: 20 Summary Accounts*. Washington, DC: The American University.

Spinner, Jackie. 2004. Phone workers seized--Threat to network 6 Egyptian engineers kidnapped this week key to cell system. *Washington Post,* 25 September, 11.

Tang, Truong Nhu. 1985. *A Vietcong Memoir*. New York: Harcourt, Brace, Jovanovich.

U.S. Marine Corps. 1988. *Small Wars Manual*. Washington, DC: Government Printing Office, 1940. Reprint Manhattan, KS: Sunflower University Press (page references are to the reprint edition).

United States Army. John F. Kennedy Special Warfare Center. 1974. SH 7828, *Principles of Resistance, Fundamentals of Unconventional Warfare*. Washington, DC: Government Printing Office.

_____. 1975. SH 31-187, *Standard Operating Procedures for Special Forces Operational Detachments in Unconventional Warfare.* Washington, DC: Government Printing Office.

INITIAL DISTRIBUTION LIST

Combined Arms Research Library
U.S. Army Command and General Staff College
250 Gibbon Ave.
Fort Leavenworth, KS 66027-2314

Defense Technical Information Center/OCA
825 John J. Kingman Rd., Suite 944
Fort Belvoir, VA 22060-6218

Dr. James H. Willbanks
Department of Military History
USACGSC
1 Reynolds Ave.
Fort Leavenworth, KS 66027-1352

Mr. Michael L. Langley
Department of Joint and Multinational Operations
USACGSC
1 Reynolds Ave.
Fort Leavenworth, KS 66027-1352

LTC Steven G. Meddaugh
Department of Joint and Multinational Operations
USACGSC
1 Reynolds Ave.
Fort Leavenworth, KS 66027-1352

CERTIFICATION FOR MMAS DISTRIBUTION STATEMENT

1. Certification Date: 17 June 2005

2. Thesis Author: Major Kevin C. Leahy

3. Thesis Title: The Impact of Technology on the Command, Control, and Organizational Structure of Insurgent Groups

4. Thesis Committee Members: Dr. James H. Willbanks

Signatures: Mr. Michael L. Langley

LTC Steven G. Meddaugh

5. Distribution Statement: See distribution statements A-X on reverse, then circle appropriate distribution statement letter code below:

(A) B C D E F X SEE EXPLANATION OF CODES ON REVERSE

If your thesis does not fit into any of the above categories or is classified, you must coordinate with the classified section at CARL.

6. Justification: Justification is required for any distribution other than described in Distribution Statement A. All or part of a thesis may justify distribution limitation. See limitation justification statements 1-10 on reverse, then list, below, the statement(s) that applies (apply) to your thesis and corresponding chapters/sections and pages. Follow sample format shown below:

EXAMPLE

Limitation Justification Statement	/	Chapter/Section	/	Page(s)
Direct Military Support (10)	/	Chapter 3	/	12
Critical Technology (3)	/	Section 4	/	31
Administrative Operational Use (7)	/	Chapter 2	/	13-32

Fill in limitation justification for your thesis below:

Limitation Justification Statement	/	Chapter/Section	/	Page(s)
	/		/	
	/		/	
	/		/	
	/		/	
	/		/	

7. MMAS Thesis Author's Signature: _____

STATEMENT A: Approved for public release; distribution is unlimited. (Documents with this statement may be made available or sold to the general public and foreign nationals).

STATEMENT B: Distribution authorized to U.S. Government agencies only (insert reason and date ON REVERSE OF THIS FORM). Currently used reasons for imposing this statement include the following:

1. Foreign Government Information. Protection of foreign information.

2. Proprietary Information. Protection of proprietary information not owned by the U.S. Government.

3. Critical Technology. Protection and control of critical technology including technical data with potential military application.

4. Test and Evaluation. Protection of test and evaluation of commercial production or military hardware.

5. Contractor Performance Evaluation. Protection of information involving contractor performance evaluation.

6. Premature Dissemination. Protection of information involving systems or hardware from premature dissemination.

7. Administrative/Operational Use. Protection of information restricted to official use or for administrative or operational purposes.

8. Software Documentation. Protection of software documentation - release only in accordance with the provisions of DoD Instruction 7930.2.

9. Specific Authority. Protection of information required by a specific authority.

10. Direct Military Support. To protect export-controlled technical data of such military significance that release for purposes other than direct support of DoD-approved activities may jeopardize a U.S. military advantage.

STATEMENT C: Distribution authorized to U.S. Government agencies and their contractors: (REASON AND DATE). Currently most used reasons are 1, 3, 7, 8, and 9 above.

STATEMENT D: Distribution authorized to DoD and U.S. DoD contractors only; (REASON AND DATE). Currently most reasons are 1, 3, 7, 8, and 9 above.

STATEMENT E: Distribution authorized to DoD only; (REASON AND DATE). Currently most used reasons are 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.

STATEMENT F: Further dissemination only as directed by (controlling DoD office and date), or higher DoD authority. Used when the DoD originator determines that information is subject to special dissemination limitation specified by paragraph 4-505, DoD 5200.1-R.

STATEMENT X: Distribution authorized to U.S. Government agencies and private individuals of enterprises eligible to obtain export-controlled technical data in accordance with DoD Directive 5230.25; (date). Controlling DoD office is (insert).