



**GAUGING THE COMMITMENT OF  
CLANDESTINE GROUP MEMBERS**

THESIS

Doneda D. Downs, 2<sup>nd</sup> Lieutenant, USAF

AFIT/GOR/ENS/06-06

**DEPARTMENT OF THE AIR FORCE  
AIR UNIVERSITY**

***AIR FORCE INSTITUTE OF TECHNOLOGY***

**Wright-Patterson Air Force Base, Ohio**

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

The views expressed in this thesis are those of the author and do not reflect the official policy or position of the United States Air Force, Department of Defense, or the United States Government.

AFIT/GOR/ENS/06-06

**GAUGING THE COMMITMENT OF  
CLANDESTINE GROUP MEMBERS**

THESIS

Presented to the Faculty

Department of Operational Sciences

Graduate School of Engineering and Management

Air Force Institute of Technology

Air University

Air Education and Training Command

In Partial Fulfillment of the Requirements for the  
Degree of Master of Science in Operations Research

Doneda D. Downs, BS

2<sup>nd</sup> Lieutenant, USAF

March 2006

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.

GAUGING THE COMMITMENT OF CLANDESTINE GROUP MEMBERS

Doneda D. Downs, BS  
2<sup>nd</sup> Lieutenant, USAF

Approved:

---

Richard F. Deckro, DBA (Advisor)  
Professor of Operations Research  
Department of Operational Sciences

---

date

---

Shane A. Knighton, PhD, Major, USAF (Reader)  
Assistant Professor of Operations Research  
Department of Operational Sciences

---

date

---

Marcus B. Perry, PhD (Reader)  
Assistant Professor of Operations Research  
Department of Operational Sciences

---

date

*ABSTRACT*

Since the attacks of September 11<sup>th</sup>, 2001, there has been a great deal of attention given to understanding the inner workings of terrorist organizations in order for the United States to be successful in the Global War on Terrorism. Group dynamics has been one area of interest pursued to gain more insight into a terrorist's cognitive battlespace. Until a few years ago, most research on individual commitment and organizational cohesion has been based primarily on questionnaires and open observations on groups that desire to be understood. However, terrorist organizations are clandestine; they constantly employ operations security (OPSEC) to ensure protection and mission accomplishment.

This thesis uses Decision Analysis principles, specifically a Value-Focused Thinking-like approach, to develop an initial hierarchal model of significant factors influencing an individual's commitment to a terrorist organization, or any clandestine group of violent extremists. Individuals are evaluated and scored according to the model to identify exploitable vulnerabilities in their commitment level. This information is then used to identify fissures of the entire organization that can be used to diminish the cohesion of the group.

AFIT/GOR/ENS/06-06

*For my husband and my mother*

## *ACKNOWLEDGEMENTS*

First and foremost, I would like to thank my husband for his unconditional love, constant encouragement, and unwavering support over the past eighteen months. Thank you for continuing to believe in me when I did not believe in myself. I truly appreciate the sacrifices he made to ensure my success, regardless of what continent he happened to inhabit. It is because of his care and understanding that I was able to complete this demanding program. Please return home soon and safe.

I would like to thank my thesis advisor, Dr. Richard F. Deckro for helping me think outside of a box I never knew existed. Without his guidance and patience during the thesis process, my academic and professional development would not have reached its full potential. I am truly indebted to Major J. Todd Hamill for offering his invaluable wisdom during this entire thesis process. I would like to express my sincere appreciation my committee members, Major Shane Knighton and Dr. Marcus Perry, for their advice and generously sharing their time and expertise. I am grateful to Major Tim Gameros who willingly shared his knowledge in the area of behavioral psychology until I fully understood the concept. I would like to thank Mr. A. Greg Jannarone for his assistance in scoping the problem and encouraging me to pursue this area of research after graduation. I would also like to express my appreciation to Mrs. Amy High who was exceptionally patient as she taught me how to efficiently and independently locate information.

Finally, I would like to thank my parents for believing I could accomplish anything by holding fast to my faith and through constant perseverance. Thank you for allowing me to complain when times were rough and rejoice when the tasks were complete.

Doneda D. Downs

## TABLE OF CONTENTS

	Page
<b>ABSTRACT .....</b>	<b>iv</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>vi</b>
<b>TABLE OF CONTENTS .....</b>	<b>vii</b>
<b>LIST OF EQUATIONS .....</b>	<b>ix</b>
<b>LIST OF FIGURES.....</b>	<b>x</b>
<b>LIST OF TABLES.....</b>	<b>xiii</b>
<b>1. INTRODUCTION .....</b>	<b>1-1</b>
1.1 PROBLEM BACKGROUND .....	1-1
1.2 PROBLEM STATEMENT.....	1-5
1.3 RESEARCH SCOPE.....	1-7
1.4 RESEARCH SUMMARY .....	1-7
<b>2. LITERATURE REVIEW .....</b>	<b>2-1</b>
2.1 INTRODUCTION .....	2-1
2.2 ORGANIZATIONAL THEORY OF COHESION.....	2-1
2.2.1 <i>Cohesion to the Primary Group</i> .....	2-3
2.2.2 <i>Cohesion to the Organization</i> .....	2-5
2.2.3 <i>Cohesion to the Organizational Principles</i> .....	2-11
2.3 MEASURING AN INDIVIDUAL’S BOND TO A GROUP.....	2-12
2.3.1 <i>Attraction-to-group (ATG)</i> .....	2-13
2.3.2 <i>Commitment</i> .....	2-14
2.4 BENEFITS OF COHESION AND COMMITMENT IN GROUPS .....	2-19
2.5 DEFINITIONS AND RESEARCH SCOPE .....	2-21
2.6 CLANDESTINE GROUPS .....	2-22
2.6.1 <i>Definition and Disadvantages of Clandestine Groups</i> .....	2-22
2.6.2 <i>Nature of Clandestine Groups</i> .....	2-23
2.6.3 <i>Membership into Terrorist Organizations</i> .....	2-24
2.7 VALUE-FOCUSED THINKING (VFT).....	2-26
2.7.1 <i>Decision Analysis and VFT</i> .....	2-26
2.7.2 <i>Value Model Development</i> .....	2-27
2.7.3 <i>Measuring the Attainment of Objectives</i> .....	2-29
2.7.4 <i>Single-Dimensional Value Functions</i> .....	2-31
2.7.5 <i>Determining the Weights of Each Measure</i> .....	2-34
2.7.6 <i>Sensitivity Analysis</i> .....	2-36
2.8 SUMMARY .....	2-36
<b>3. METHODOLOGY .....</b>	<b>3-1</b>
3.1 INTRODUCTION .....	3-1
3.2 VFT-LIKE APPROACH TO INDIVIDUAL COMMITMENT .....	3-1
3.2.1 <i>Significance of Modeling Individual Commitment in Clandestine Groups</i> .....	3-2
3.2.2 <i>Modeling Individual Commitment in Clandestine Groups</i> .....	3-3
3.3 SUMMARY .....	3-14
<b>4. GAUGING INDIVIDUAL COMMITMENT—AN ILLUSTRATION .....</b>	<b>4-1</b>
4.1 INTRODUCTION .....	4-1
4.2 DETAILS OF THE STUDY.....	4-1

4.2.1 <i>The Perkinites</i> .....	4-1
4.2.2 <i>Analysis Preparation</i> .....	4-2
4.2.3 <i>Weighting Measures</i> .....	4-3
4.2.4 <i>Analysis and Targeting</i> .....	4-10
4.3 SENSITIVITY ANALYSIS .....	4-17
4.3.1 <i>Commitment to Primary Group--Duration of Membership</i> .....	4-17
4.3.2 <i>Commitment to Organization—Variation from Group Norms</i> .....	4-18
4.3.3 <i>Commitment to Organizational Principles—Variation in Desired Method of Goal Accomplishment</i> .....	4-19
4.4 INSIGHTS .....	4-20
4.5 SUMMARY .....	4-21
<b>5. CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>5-1</b>
5.1 OVERVIEW OF THE MODEL .....	5-1
5.2 OBJECTIVES OF THIS STUDY .....	5-1
5.3 RECOMMENDATIONS FOR FURTHER RESEARCH.....	5-2
5.4 CONCLUSION .....	5-4
<b>APPENDIX A: KEY DEFINITIONS OF GROUP COHESION .....</b>	<b>A-1</b>
<b>APPENDIX B: KEY DEFINITIONS OF COMMITMENT .....</b>	<b>A-4</b>
<b>APPENDIX C: DESCRIPTION OF THE INDIVIDUAL COMMITMENT HIERARCHY .....</b>	<b>A-6</b>
<b>APPENDIX D: GLOSSARY .....</b>	<b>A-44</b>
<b>APPENDIX E: DATA ON THE PERKINITES .....</b>	<b>A-46</b>
<b>APPENDIX F: SCORING OF PERKINTE MEMBERS .....</b>	<b>A-47</b>
<b>BIBLIOGRAPHY .....</b>	<b>BIB-1</b>

*List of Equations*

	Page
EQUATION 2.1 MONOTONICALLY INCREASING SINGLE-DIMENSIONAL VALUE FUNCTION.....	2-33
EQUATION 2.2 MONOTONICALLY DECREASING SINGLE-DIMENSIONAL VALUE FUNCTION .....	2-34
EQUATION 2.3 ADDITIVE VALUE FUNCTION .....	2-35

## *List of Figures*

	Page
FIGURE 1.1 SCOPE OF TRANSNATIONAL TERRORIST NETWORKS.....	1-3
FIGURE 2.1 THREE-COMPONENT MODEL OF ORGANIZATIONAL COMMITMENT .....	2-19
FIGURE 2.2 DISCRETE AND CONTINUOUS SDVFS .....	2-32
FIGURE 2.3 CATEGORICAL SDVF .....	2-32
FIGURE 2.4 LINEAR SDVF .....	2-33
FIGURE 2.5 EXPONENTIAL SINGLE-DIMENSIONAL VALUE FUNCTIONS .....	2-34
FIGURE 2.6 LOCAL WEIGHTS (LEFT) VERSUS GLOBAL WEIGHTS IN A VALUE HIERARCHY .....	2-35
FIGURE 3.1 TOP OF THE INDIVIDUAL COMMITMENT HIERARCHY .....	3-4
FIGURE 3.2 INDIVIDUAL COMMITMENT TO A CLANDESTINE GROUP HIERARCHY.....	3-6
FIGURE 3.3 <i>COMMITMENT TO PRIMARY GROUP</i> SUB-HIERARCHY.....	3-8
FIGURE 3.4 SDVF FOR <i>SIZE</i> .....	3-9
FIGURE 3.5 <i>COMMITMENT TO ORGANIZATION</i> SUB-HIERARCHY .....	3-10
FIGURE 3.6 SDVF FOR <i>BARRIER TO EXIT</i> .....	3-12
FIGURE 3.7 <i>COMMITMENT TO ORGANIZATION PRINCIPLES</i> SUB-HIERARCHY .....	3-13
FIGURE 3.8 SDVF OF <i>MERCENARY MOTIVES</i> .....	3-14
FIGURE 4.1 ADJUSTED SDVF FOR <i>DURATION OF MEMBERSHIP</i> IN <i>PRIMARY GROUP</i> .....	4-3
FIGURE 4.2 NETWORK REPRESENTATION OF THE PERKINITE MEMBERS .....	4-4
FIGURE 4.3 LOCAL WEIGHT FOR <i>COMMITMENT TO PRIMARY GROUP</i> SUB-HIERARCHY.....	4-5
FIGURE 4.4 GLOBAL WEIGHT FOR <i>COMMITMENT TO PRIMARY GROUP</i> SUB-HIERARCHY .....	4-5
FIGURE 4.5 LOCAL WEIGHT FOR <i>COMMITMENT TO ORGANIZATION</i> SUB-HIERARCHY .....	4-7
FIGURE 4.6 GLOBAL WEIGHT FOR <i>COMMITMENT TO ORGANIZATION</i> SUB-HIERARCHY .....	4-7
FIGURE 4.7 LOCAL WEIGHT FOR <i>COMMITMENT TO ORGANIZATIONAL PRINCIPLES</i> SUB-HIERARCHY .....	4-8
FIGURE 4.8 GLOBAL WEIGHT FOR <i>COMMITMENT TO ORGANIZATIONAL PRINCIPLES</i> SUB-HIERARCHY.....	4-8
FIGURE 4.9 INDIVIDUAL COMMITMENT HIERARCHY WITH LOCAL WEIGHTS .....	4-9
FIGURE 4.10 INDIVIDUAL COMMITMENT HIERARCHY WITH GLOBAL WEIGHTS .....	4-9
FIGURE 4.11 PERKINITE COMMITMENT RANKINGS .....	4-10

FIGURE 4.12 PERKINITE <i>COMMITMENT TO PRIMARY GROUP</i> RANKINGS .....	4-14
FIGURE 4.13 PERKINITE <i>COMMITMENT TO ORGANIZATION</i> RANKINGS.....	4-14
FIGURE 4.14 PERKINITE <i>COMMITMENT TO ORGANIZATIONAL PRINCIPLES</i> RANKINGS .....	4-15
FIGURE 4.15 SENSITIVITY ANALYSIS— <i>DURATION OF MEMBERSHIP</i> IN PRIMARY GROUP.....	4-18
FIGURE 4.16 SENSITIVITY ANALYSIS— <i>VARIATION FROM GROUP NORMS</i> OF THE ORGANIZATION .....	4-19
FIGURE 4.17 SENSITIVITY ANALYSIS— <i>VARIATION IN DESIRED METHOD OF GOAL ACCOMPLISHMENT</i> .....	4-20
FIGURE C.1 <i>COMMITMENT TO PRIMARY GROUP</i> SUB-HIERARCHY .....	A-10
FIGURE C.2 SDVF FOR <i>SIZE</i> .....	A-11
FIGURE C.3 SDVF FOR <i>DURATION OF MEMBERSHIP</i> .....	A-12
FIGURE C.4 SDVF FOR <i>ISOLATION STATUS</i> .....	A-13
FIGURE C.5 SDVF FOR <i>COMPOSED OF KIN/CLAN/TRIBE</i> .....	A-14
FIGURE C.6 SDVF FOR <i>SUPERVISOR LEGITIMACY</i> .....	A-16
FIGURE C.7 SDVF FOR <i>SUPERVISOR CREDIBILITY</i> .....	A-17
FIGURE C.8 SDVF FOR <i>POSITION/RESPONSIBILITY</i> .....	A-18
FIGURE C.9 SDVF FOR <i>SELF-IDENTITY</i> .....	A-19
FIGURE C.10 SDVF FOR <i>INITIAL TRAINING TOGETHER</i> .....	A-20
FIGURE C.11 SDVF FOR <i>NUMBER OF COMPLETED OPERATIONAL MISSIONS</i> .....	A-21
FIGURE C.12 SDVF FOR <i>MORAL OBLIGATION</i> .....	A-22
FIGURE C.13 <i>COMMITMENT TO ORGANIZATION</i> SUB-HIERARCHY.....	A-23
FIGURE C.14 SDVF FOR <i>RECRUITMENT METHOD</i> .....	A-24
FIGURE C.15 SDVF FOR <i>PRIOR EXISTING RELATIONSHIPS</i> .....	A-25
FIGURE C.16 SDVF FOR <i>LEADERSHIP LEGITIMACY</i> .....	A-27
FIGURE C.17 SDVF FOR <i>FACTIONS AMONG LEADERSHIP</i> .....	A-28
FIGURE C.18 SDVF FOR <i>VARIATION FROM GROUP NORMS</i> .....	A-29
FIGURE C.19 SDVF FOR <i>SIGNIFICANT EXTERNAL CONNECTIONS</i> .....	A-31
FIGURE C.20 SDVF FOR <i>DURATION OF MEMBERSHIP</i> .....	A-32
FIGURE C.21 SDVF FOR <i>MATERIAL SUPPORT</i> .....	A-33
FIGURE C.22 SDVF FOR <i>ORGANIZATIONAL PRESTIGE</i> .....	A-34

FIGURE C.23 SDVF FOR <i>BARRIER TO EXIT</i> .....	A-35
FIGURE C.24 SDVF FOR <i>STRENGTH OF OBLIGATION</i> .....	A-37
FIGURE C.25 SDVF FOR <i>CHANGE IN GOALS</i> .....	A-38
FIGURE C.26 <i>COMMITMENT TO ORGANIZATIONAL PRINCIPLES</i> SUB-HIERARCHY .....	A-39
FIGURE C.27 SDVF FOR <i>DEDICATION DURATION</i> .....	A-40
FIGURE C.28 SDVF FOR <i>KNOWN LEVEL OF ACTIVISM</i> .....	A-41
FIGURE C.29 SDVF FOR <i>MERCENARY MOTIVES</i> .....	A-42
FIGURE C.30 SDVF FOR <i>VARIATION IN DESIRED METHOD OF GOAL ACCOMPLISHMENT</i> .....	A-43

*List of Tables*

	Page
TABLE 2.1 INTEGRATION OF MASLOW AND ERG .....	2-10
TABLE 2.2 BENEFITS OF A COHESIVE GROUP .....	2-20
TABLE 2.3 BENEFITS OF HAVING COMMITTED MEMBERS .....	2-20
TABLE 2.4 STEPS TO DECISION MAKING USING VFT .....	2-27
TABLE 2.5 DESIRABLE PROPERTIES OF FUNDAMENTAL OBJECTIVES .....	2-28
TABLE 2.6 DESIRABLE PROPERTIES OF VALUE HIERARCHIES .....	2-29
TABLE 2.7 EXAMPLES OF EVALUATION MEASURE SCALES .....	2-30
TABLE 3.1 SUMMARY OF THE THREE COMPONENTS OF ORGANIZATIONAL COMMITMENT .....	3-5
TABLE 3.2 CATEGORICAL SCORING FOR <i>SIZE</i> .....	3-9
TABLE 3.3 CATEGORICAL SCORING FOR <i>BARRIER TO EXIT</i> .....	3-12
TABLE 3.4 CATEGORICAL SCORING FOR <i>MERCENARY MOTIVES</i> .....	3-14
TABLE 4.1 PERKINITE COMMITMENT RANKINGS .....	4-11
TABLE 4.2 PERKINITE COMMITMENT RANKINGS INCLUDING SCORES OF THE THREE BONDS .....	4-13
TABLE C.1 SUMMARY OF THE THREE COMPONENTS OF ORGANIZATIONAL COMMITMENT .....	A-9
TABLE C.2 CATEGORICAL SCORING FOR <i>SIZE</i> .....	A-11
TABLE C.3 CATEGORICAL SCORING FOR <i>ISOLATION STATUS</i> .....	A-13
TABLE C.4 CATEGORICAL SCORING FOR <i>COMPOSED OF KIN/CLAN/TRIBE</i> .....	A-15
TABLE C.5 CATEGORICAL SCORING OF <i>SUPERVISOR LEGITIMACY</i> .....	A-16
TABLE C.6 CATEGORICAL SCORING FOR <i>SUPERVISOR CREDIBILITY</i> .....	A-17
TABLE C.7 CATEGORICAL SCORING FOR <i>POSITION/RESPONSIBILITY</i> .....	A-18
TABLE C.8 SCORING FOR <i>SELF-IDENTITY</i> .....	A-19
TABLE C.9 CATEGORICAL SCORING FOR <i>NUMBER OF COMPLETED OPERATIONAL MISSIONS</i> .....	A-21
TABLE C.10 SCORING RANGE FOR <i>MORAL OBLIGATION</i> .....	A-22
TABLE C.11 CATEGORICAL SCORING FOR <i>RECRUITMENT METHOD</i> .....	A-24
TABLE C.12 CATEGORICAL SCORING FOR <i>PRIOR EXISTING RELATIONSHIPS</i> .....	A-26
TABLE C.13 CATEGORICAL SCORINGS FOR <i>LEADERSHIP LEGITIMACY</i> .....	A-27

TABLE C.14 CATEGORICAL SCORING FOR <i>FACTIONS AMONG LEADERSHIP</i> .....	A-28
TABLE C.15 CATEGORICAL SCORING FOR <i>VARIATION FROM GROUP NORMS</i> .....	A-29
TABLE C.16 CATEGORICAL SCORING FOR <i>SIGNIFICANT EXTERNAL CONNECTIONS</i> .....	A-31
TABLE C.17 CATEGORICAL SCORING FOR <i>ORGANIZATIONAL PRESTIGE</i> .....	A-34
TABLE C.18 CATEGORICAL SCORING FOR <i>BARRIER TO EXIT</i> .....	A-36
TABLE C.19 CATEGORICAL SCORING FOR <i>STRENGTH OF OBLIGATION</i> .....	A-37
TABLE C.20 CATEGORICAL SCORING FOR <i>CHANGE IN GOALS</i> .....	A-38
TABLE C.21 CATEGORICAL SCORING FOR <i>MERCENARY MOTIVES</i> .....	A-42

# GAUGING THE COMMITMENT OF CLANDESTINE GROUP MEMBERS

## *1. Introduction*

*We will not rest until terrorist groups of global reach have been found,  
have been stopped, and have been defeated.<sup>1</sup>*

### **1.1 Problem Background**

The World Trade Center and Pentagon attacks on September 11, 2001 prompted the United States to recognize and engage in the Global War on Terrorism (GWOT), a war dissimilar to any of our recent conflicts due to its many asymmetric attributes and non-nation state foes. An important distinction of the GWOT is the enemy in this war is not one person or a single political regime. Today's enemy is a practice—terrorism: “a premeditated, politically motivated violence perpetrated against noncombatant targets by subnational groups or clandestine groups” [National Strategy, 2003:1]. To be successful in this war, the United States and its allies must effectively employ antiterrorism approaches defined by the Department of Defense as “defensive measures used to reduce the vulnerability of individuals and property to terrorist acts, to include limited response and containment by local military forces” [Department of Defense Dictionary, 2001:538]. As an end state, the nation seeks to deter foes from engaging in terrorism throughout the world, and neutralize any person or any group continuously participating in terrorist activities regardless of race, religious background, political belief, or location.

Another critical element of the GWOT is the enemy does not acknowledge the conventional distinction between combatants and noncombatants. Traditionally, war was restricted military operations between “states or a state and an insurgency group” [Record, 2003:3]. The current enemies of the United States have elected to include all

---

<sup>1</sup> President George W. Bush, 6 November 2001 [National Strategy, 2003:1]

Americans—civilian and military—in their violent actions. In the following quote from Osama bin Laden, the founder and leader of al Qaeda, as well as the current face of terrorism, gives his justification [Post, 2003:19]:

*The American people should remember that they pay taxes to their government, they elect their president, their government manufactures arms and gives them to Israel and Israel uses them to massacre Palestinians. The American Congress endorses all government measures and this proves that the entire America is responsible for the atrocities perpetrated against Muslims. The entire America, because they elect the Congress [Mir, 2001].*

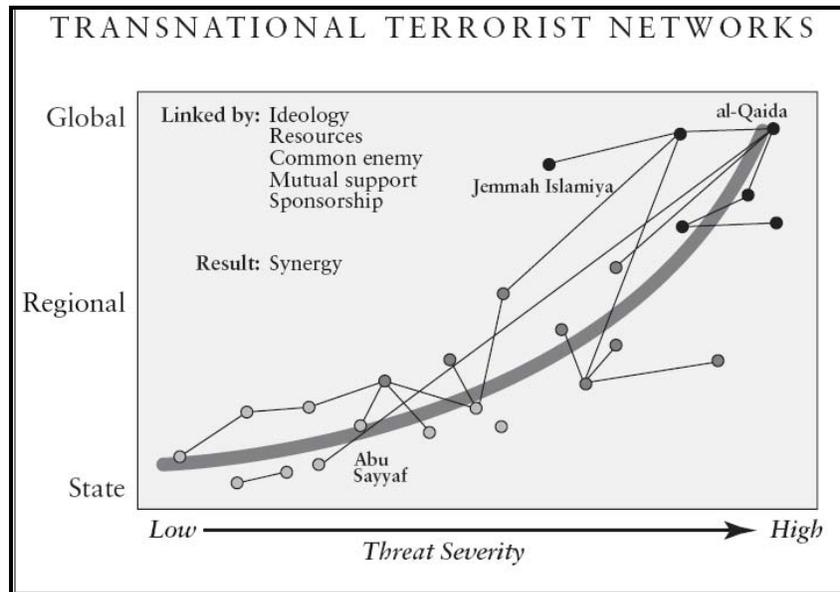
Although the United States did not officially declare war on terrorism until after the attacks of September 11<sup>th</sup>, the United States had been publicly targeted as an enemy to Islam by a *fatwa* (legal opinion) issued in February of 1998 by Osama bin Laden [Post, 2003:24]. The primary command given by the fatwa instructs Muslims to target and kill Americans and their allies. As a result, terrorists or sympathizers in every corner of the world have engaged in a global Salafi<sup>2</sup> *jihad* (holy war) against those with American ideals [Fatur, 2005:12; Post, 2003:34]. Al Qaeda is the vanguard of the Salafi jihad and a globally influential and transnational terrorist organization; it seeks to achieve separation from Western influence by disconnecting Muslim countries in an effort to restore the Islamic community to purity [Sageman, 2004:1].

In 1995, Sper, a student at the Naval Postgraduate School, stated that “action is, in essence, the glue that holds [...] terrorist groups together” [Sper, 1995:7]. Ten years later, in the midst of the GWOT, this concept is still valid; the popularity of the Salafi jihad increases as terrorists are able to reach more people [Anonymous, 2002: 177-178].

---

<sup>2</sup> A movement comprised of Sunni extremists who believe they are the only correct interpreters of the Qur'an and consider moderate or mainstream Muslims to be infidels. Salafists seek to convert all Muslims and to insure their own fundamentalist version of Islam will dominate the world. “Salafi” comes from the word “Salaf” which means ancestors in Arabic. This worldview holds that the Righteous Ancestors were the Prophet, his companions, and the Four Caliphs who succeeded him: Abu-Bakr, Umar, Uthman, and Ali (the nephew of the Prophet) [National Military Strategic Plan for the War on Terrorism, 2006: 36].

Today's terrorist organizations seek to make their ideological and political views known across the globe by inciting fear and terror through extreme violent actions, while utilizing modern technology. Figure 1.1, from the National Strategy for Combating Terrorism, shows the relationship between the location of the terrorist networks and their capability to reach out and touch others.



**Figure 1.1** Scope of Transnational Terrorist Networks [National Strategy, 2003:9]

As indicated by Figure 1.1, al Qaeda and Jemmah Islamiya (JI) are believed to have the greatest ability to reach more people which increases their threat to the Western way of life. It is important to note that while some terrorist organizations may have limited access to people across the globe, their violent actions are still capable of international consequences [Nation Strategy, 2003:8]. Terrorist organizations, such as al Qaeda, use the Internet for several reasons including psychological warfare, publicity, fundraising for the organization, recruiting, networking and to distribute information and orders while maintaining anonymity [Weimann, 2004:5-10]. This utilization of technology makes locating and disabling today's enemy more difficult than in wars of the

past. According to the National Security Strategy, we seek to reduce the scope and capabilities of these types of groups in an effort to diminish their threat [Nation Strategy, 2003:11].

The United States faces a difficult task in the GWOT for a plethora of reasons, one of which is the transnational reach and nature of these enemies. Not being confined to nation-state borders, these enemies can potentially reside and inflict damage anywhere on the globe. From the instructions given in the *Al Qaeda Training Manual* it is evident that today's terrorists are required to operate as clandestine groups, maintaining an exceptional level of operations security (OPSEC) to ensure they are not detected and their missions can be executed. In an effort to learn as much as possible in a short amount of time, global terrorist organizations, such as al Qaeda and JI, simultaneously exist on many different topologies [Forster, 2001:1]. Operationally, we must execute Influence Operations<sup>3</sup> against these enemies in order to affect their decision-making and change their behavior in such a way as to align with coalition objectives [“Information Operations,” 2005:9]. The capabilities of our military to influence our enemies include Counterpropaganda operations, psychological operations (PSYOP), military deception (MILDEC), operations security (OPSEC), counterintelligence (CI) operations, and public affairs (PA) operations. To aid these endeavors, this study will develop a model and methodology to determine the commitment of individuals in a clandestine group by using intelligence data.

---

<sup>3</sup>*Influence operations are the integrated planning, employment, and assessment of military capabilities to achieve desired effects across the cognitive targeting domain in support of operational objectives. Influence ops employ capabilities that affect behaviors, protect operations, communicate commander's intent, and project accurate information to achieve desired effects across the cognitive targeting domain [AFDD 2-5, 2005:9; Information Operations CONOP, 2004:5]*

Since the enemy and battlefield of the GWOT is different from conventional war, it is even more critical that the United States expend effort to learn our enemy's weaknesses in the cognitive, as well as in the physical battlespace. By influencing and shaping the enemy's cognitive domain, our military will be able to accurately and effectively exploit their susceptibilities and vulnerabilities and better shield our movements and intentions on the physical battlefield [IO CONOP, 2004:7]. As earlier stated, the present conflict has more inherent difficulties because our enemies belong to clandestine, transnational groups. This fact underscores why it is necessary to work harder than we have in the past at gathering accurate intelligence in order to breach the OPSEC practiced by these enemies. It is critical to the success of the United States to learn the structure and characteristics of adversarial clandestine networks, as well as specific information regarding individual members, and the group's attraction to its members.

## **1.2 Problem Statement**

A primary area of study that must be considered when investigating clandestine organizations in order to execute Influence Operations is the internal dynamics of the group—particularly the elements influencing the commitment of the group members as well as the cohesion of the entire group. Carl von Clausewitz recognized the importance of cohesion in a unit fighting for a cause. In his book, *On War*, he writes:

*An army that maintains its cohesion under the most murderous fire; that cannot be shaken by imaginary fears and resists well founded ones with all its might; that proud of its victories, will not lose the strength to obey orders and respect and trust for its officers even in defeat; whose physical power, like the muscles of an athlete, has been steeled by training in privation and effort; a force*

*that regards such efforts as a means to victory rather than a curse on its cause; that is mindful of all these duties and qualities by virtue of the single powerful ideal of the honor of its arm—such an army is imbued with the true military spirit [Clausewitz, 1976:187-88].*

Today, the United States continues to acknowledge the importance of maintaining cohesion in its own units and diminishing the cohesiveness of enemy units. US Air Force Doctrine states that if the enemy's cohesion can be destroyed then our battle may be won prior to engaging in close combat ["Air Force Basic Doctrine," 2003:17]. According to McCauley (2004), "both the origins and effects of terrorist acts are anchored in group dynamics" [McCauley, 2004:62]. He argues

*Group dynamics research and the psychology of cohesion [...] provide a useful starting point for theorizing about the origins and consequences of group identification, including many aspects of public reaction to terrorism [McCauley, 2004:62].*

This research identifies and clarifies factors significant to the commitment of members of a clandestine group. These factors are based on group dynamics and psychology surrounding organizational commitment and small-group cohesion. The model uses the identified critical elements to investigate members of the group to determine their individual vulnerabilities, and thereby establish and make recommendations to exploit fissures within the cohesion of the group. First, this study develops a value hierarchy of factors that influence and measure an individual's commitment to a clandestine group. The weights for the measures in the value hierarchy may be determined with appropriate subject-matter experts. While the weights within the hierarchy may change based on the culture and background of the clandestine organization, the measures are developed to be mutually exclusive, robust, and collectively exhaustive; they therefore should remain unchanged within the hierarchy while the weighting may change with each group. Then, the value hierarchy is applied to

the members of a clandestine organization, determining their individual characteristics to exploit, and identifying factors that will weaken the cohesiveness of the group.

### **1.3 Research Scope**

The general focus of this thesis is on the commitment of individuals in clandestine groups, such as those currently devoted to terrorism, that display a global threat or a direct threat to the United States. Information gathering on clandestine organizations is limited to open source data. The purpose of this research is to allow analysts to investigate the commitment level of individuals in a clandestine group as well as provide insight into the group's overall cohesion. By highlighting which factors weaken the commitment of individuals and the cohesion of the group, analysts can use this knowledge to accurately recommend courses of action based on the specific vulnerabilities of the terrorist organization.

### **1.4 Research Summary**

The structure of this thesis continues with Chapter 2 presenting a literature review, including theory on group dynamics pertaining to organization commitment and small-group cohesion in conventional groups (i.e. those not practicing OPSEC), a summary of clandestine groups relevant to this research, and a review of value-focused thinking and value hierarchies. Chapter 3 outlines the methodology used to develop the preliminary hierarchy and how the literature on group dynamics will be applied. The model will then be applied to fictitious clandestine organization in Chapter 4. Chapter 5 discusses the conclusions of this thesis and outline recommendations to further this research.

## **2. Literature Review**

*Searching and learning is where the miracle process all begins...<sup>4</sup>*

### **2.1 Introduction**

This chapter reviews group dynamics literature pertaining to organizational commitment and small-group cohesion, studying clandestine groups, and implementing Value-Focused Thinking (VFT). Prior to reviewing the concept of individual commitment, the theory surrounding group cohesion is discussed in order to lay a foundation for what factors cause people to unite with others. The summary of cohesion and commitment is followed by an overview of clandestine groups, specifically terrorist organizations, and a review of Value-Focused Thinking, the methodology used in this research.

### **2.2 Organizational Theory of Cohesion**

Cohesiveness has been generally considered to be the most significant characteristic of a group [Lott, 1960:275]. For many years the cohesion level within a group has been known to have a strong impact on its success. Without cohesion groups can still exist, but they cease to be “cooperative, goal-oriented” units [Sper, 1995:19]. There is documentation attesting to this across ancient cultural beliefs. For example, in Mark 3:25, Jesus is recorded as saying, “A house divided cannot stand,” implying unity is needed for a household (i.e. a group of people) to be successful [*Life Application Study Bible*, 2005:1615].

While cohesion has been recognized throughout history, its precise definition has been amorphous. It was not until 1950, after the development of the initial systematic

---

<sup>4</sup> Jim Rohn Quote, “*BrainyQuotes: Jim Rohn Quotes*,” 2006.

approach to studying group cohesion, that this area received its first widely accepted modern academic definition found in the work of Festinger, Schachter, and Back. They stated, “Cohesion is the resultant or total forces acting on group members to keep them in the group” [Festinger, *et al*, 1950:164]. A common criticism with this definition centers on the phrase *total forces*. It is a vague description of the determinants of group cohesion and has led to ambiguity when developing an operational definition of cohesion because of its difficulty to measure [Evans and Jarvis, 1980:360; Piper, *et al*, 1983:94]. The Festinger, *et al* definition has also received criticism because it is not clear if “cohesion” refers to an individual’s commitment to the group or the cohesiveness of the entire group [Lott, 1960:276]. Despite these drawbacks, there has been a great deal of research carried out to identify the causes of cohesiveness in groups.<sup>5</sup> Unfortunately, the vagueness of the initial academic definition of cohesion has led to “little cohesion in cohesion research,” leaving a true operational definition of cohesion to remain an enigma [Piper, *et al*, 1983:94].

Due to the varied definitions of cohesion that have been developed over the past fifty plus years, it is necessary to clarify what is meant by the term in each investigation. In a recent study, Friedkin recommended continuing to expand the Festinger, *et al* definition, versus abandoning it, to include the specific conditions of an individual’s group environment [Friedkin, 2004:411]. Actually, most subsequent research on group theory pertaining to organizational cohesion has continued to use this definition as a starting point to evolve the initial, but vague, nominal definition of cohesion into a unique operational one [Mullen and Cooper, 1995:4]. In this thesis, the 1950 Festinger, *et al*’s academic definition and components of cohesion are the foundation for a unique

---

<sup>5</sup> Reference Appendix A for a list of key definitions of group cohesion

operational definition of group cohesion and individual commitment. Before developing definitions, a review of the literature is necessary.

### *2.2.1 Cohesion to the Primary Group*

Along with the 1950 definition, the Festinger, *et al* study concluded there were three components of cohesiveness: interpersonal attraction, group pride, and commitment to the task [Festinger, *et al*, 1950: 165?]. There are several subsequent studies that have focused on one or more of these components to expand the Festinger, *et al* (1950) definition. In the year following the Festinger, *et al* study, Schachter added to their definition by describing cohesion as the “cement binding together group members and maintaining their relationship to one another” [Schachter, 1951:229]. This revised definition reiterated that cohesion is directly impacted by the interpersonal relationships of group members.

Schachter’s definition was built upon in several noteworthy studies. Two examples include Piper, *et al* (1983) who described cohesion as the “basic bond or uniting force in a group” [Piper, *et al*, 1983:95]. The second study was in 2002 by Bartone, *et al* who expressed cohesion as a “basic bond or commitment of members to the group [...]” [Bartone, *et al*, 2002:7]. These definitions all suggest there must be a clear bond between the members of the group in order for cohesion to developed and maintained within the group. However, there are more studies that further dissected the necessary dynamics of the group that must be present in order for cohesion to be increase.

Following the research efforts of Piper, *et al* (1983), Griffith (1988), Stewart (1991) and McBreen (2002), cohesion to participants is concerned with *the degree of the bonds developed between participating members of an organization*. Horizontal

cohesion (Griffith, 1988; Stewart, 1991) is significant because the bonds of trust, friendship, and loyalty between participants play a vital role in an individual's decision to remain a member of the group [Wong, 1985:34; Wong, *et al*, 2003:1]. Research has indicated the cohesion between peers is highly dependent upon the size of the primary group and how long that group has endured and overcome stressful situations together.

In 1965, while studying production effectiveness in terms of group size, Olson concluded that a small group size was more desirable developing a bond and fulfilling group interests [Olson, 1965:36]. These conclusions were challenged in 1974 by Chamberlin who concluded size was not a factor in accomplishing the group's goals and therefore did not contribute to cohesion [Chamberlin, 1974:713-715]. However, it has been previously shown that performance and productivity are not accurate determinants of group cohesion and should not be used to indicate its strength [Schachter, *et al*, 1951:236; Gruen, 1965:321].

Two separate studies on group dynamics (Davis, 1969; Mullen and Cooper, 1995) agree with Olson stating large groups come with inherent disadvantages such as a weak bond developing between the members and the group, freeloading, and lack of focus on the group tasks [Davis, 1969:72; Mullen and Cooper, 1995:13]. Davis suggests a large group should have several subgroups working on specific tasks in order for the entire group to achieve its goal [Davis, 1969:72]. Subsequent research has named these subgroups *primary groups*. A primary group is defined by Johns, *et al* as "a small group characterized by intimate face-to-face association and cooperation" [Johns, *et al*, 1984:6]. Some researchers have suggested cohesion can only exist among primary groups because

face-to-face<sup>6</sup> interactions have a significant positive effect on building strong bonds between participants [Johns, *et al*, 1984:8; Wong, 1985:20; McBreen, 2002:5]. Griffith even suggests the concept of cohesion is rooted in the properties of small groups rather than large ones [Griffith, 1988:165].

Along with working in a primary group, several authors have indicated the primary group must develop bonds as a result of a shared hardship, or cohesiveness will not be sustained within the group. Griffith defines stress as any physical or psychosocial threat to an individual [Griffith, 2002:223]. His study brings to light the significance of having a cohesive group when facing a stressful situation: the group is more likely to stay together and face the adversity rather than disband. Wong describes stress as “the realistic, meaningful and strenuous manner in which we train our soldiers to accomplish their missions” [Wong, 1985:28]. He goes on to point out that stress is essential to create and maintain “strong bonds of mutual respect, trust and caring...among unit members” [Wong, 1985:29]. In 2002, Bartone, *et al*, concluded sharing experiences under stress is a significant factor on horizontal cohesion [Bartone, *et al*, 2002:7]. In 2003, Wong, *et al* determined the cohesiveness of soldiers serving in Iraq existed mainly because they depended on one another to stay alive [Wong, *et al*, 2003:15]. These studies all show that stressful situations are beneficial for the group to develop and maintain cohesiveness.

### *2.2.2 Cohesion to the Organization*

In addition to the group pride component of cohesiveness, Festinger, *et al* determined a significant factor of a member’s pride, leading to the cohesiveness of the

---

<sup>6</sup> While face-to-face groups are encouraged and recommended, they are not absolutely necessary to build cohesion within primary groups because today’s technology has made attaining cohesion possible without having face-to-face contact [Moody and White, 2001:104]

group, is the attractiveness of the entire organization [Festinger, *et al*, 1950:164-165]. The attractiveness of the group refers to the extent that becoming a member of the group is considered a goal and has positive valence, while the latter is concerned with the group's method to accomplish goals. Festinger, *et al*'s group pride component of cohesiveness has been the focus of several studies over the years with a proxy measurement of membership retention.

In a 1959 research paper, van Bergen and Koekebakker stated group cohesion was directly related to the member's attraction to the organization. This could be measured by whether individuals remained—a direct indication of their pride of being members of the organization [van Bergen and Koekebakker, 1959:85]. Several authors expanded on this idea and concluded that a group's cohesion was easily measured by whether members retained their membership. For example, in his 1960 study, Wolfman simply defined cohesion as “the tendency of individuals to stay in their [organization]” [Wolfman, 1960:409]. In 1988, Griffith, a military psychologist, stated group cohesion in Army units could be measured by the “willingness [of soldiers] to stay in the group” [Griffith, 1988:149]. This set of cohesion definitions implies low attrition is a critical element in establishing and sustaining cohesion in a group. This perspective is not conducive to studying clandestine organizations, particularly violent extremists because individuals may choose to retain membership because the alternative is death, death of a close family member, or both.

The cohesion to a member's group captures the member's allegiance to the entire organization beyond their primary group [Piper, *et al*, 1983:103]. Several studies have shown that it is not just the number of people that join a group and whether or not those

people are friends, but rather the number of participants remaining active in the group that is significant to determining cohesiveness within the organization. There are several factors that influence whether a person has pride in the group and therefore remains a member.

Once an individual has made the one-time decision to join a group, it is critical to identify factors contributing to the group's attrition to have a clear understanding of why the person remains an active member. Griffith discussed this element of cohesion in terms of a soldier's satisfaction with the US Army's policies, financial compensation, family considerations, job security and retirement [Griffith, 1988:156]. While this list is not intended to capture all of the factors, Griffith's study showed that the higher the degree of satisfaction with the entire organization, the more likely a soldier would remain in the Army. Stewart (1991) referred to a member's bond with their overall group as organizational cohesion [Stewart, 1991:27]. McBreen (2002) states this bond is a result of constantly reinforcing "symbols and stories, the legacy and culture" of the group [McBreen, 2002:15]. Following Stewart's idea, two other studies determined that once people are recruited the organization must exert great effort to ensure individuals develop a sense of identity and strengthen their commitment [Polletta and Jasper, 2001:290, 292; Driscoll, 2005:11]. From these studies, it is clear that measuring member's bond to their group is a necessary component of the group's overall cohesiveness because it adds an additional layer of cohesion for an individual member of the group. However, organizational cohesion can only exist after cohesion to the primary group has been established [Henderson, 1985:5].

### 2.2.2.1 Collective Identity

In his book, *Group Performance*, Davis (1969) defines a group norm as a “socially accepted standard or attitude that directs the behavior or belief exhibited by the majority of the members of a group” [Davis, 1969:82]. The more members conform to group norms, the higher the level of cohesion [Johns, *et al*, 1984:5]. While the degree of adherence to group norms by individuals in a group is not a sufficient measurement of cohesion by itself, if norms do not exist in the group in some form, cohesion can not develop [Smith, 1998:50]. Group norms arise differently in different organizations. Some groups have formal operational codes that are written rules and procedures while others maintain a standard of overt behavior because it is the *status quo* [Davis, 1969:82]. The ability of a group to get an individual to conform to the group norms depends highly on the individual’s initial attractiveness to the group [Festinger, *et al*, 1950:102]. Group norms must be continually adhered to and reaffirmed in order for an individual to internalize the group’s operational code as their own [Driscoll, 2005:10].

Polletta and Jasper (2001) formally define this concept as collective identity:

*“An individual’s cognitive, moral, and emotional connection with a broader community, category, practice, or institution” [Polletta and Jasper, 2001:285].*

However, this concept had been previously studied in group dynamics in an attempt to understand the relationship between group norms and group cohesiveness. Olson first argued that “shared interests are not enough to motivate individuals to act without selective incentives,” suggesting that people required the reinforcement of the group norms for people to internalize them [Olson, 1965:133]. In a separate study, Gruen expanded the existing cohesion definitions and expressed it as “a force to maintain the structure and norms of the group which the members have evolved through their

interaction” [Gruen, 1965:312]. In addition, in 1984 Johns led a military study for the National Defense University which defined cohesion as “the commitment to conform to group standards of behavior and to respond to pressures from other members of the group even under adverse circumstances” [Johns, *et al*, 1984:4]. Each of these studies makes it clear that cohesion is dependent on the acceptance and adherence to group norms by the members of the organization.

Polletta and Jasper (2001) agreed with these findings and concluded recruitment is only the beginning of building cohesion; constant reinforcement in the form of rituals, ceremonies and rewards must take place for individuals to diminish their personal identity and remain participating members of the organization, eventually leading to increased cohesion to the organization [Polletta and Jasper, 2001:292]. Driscoll also observed the necessity for rituals and ceremonies in her recent study on suicide bombers:

*Ritualized behaviors such as group prayer, purification, fasting, deference, dress, public declarations or other expressions of commitment all serve to induce an immediate emotional response and act as the necessary evidence that other members of the group are allies [Driscoll, 2005:11].*

In addition, “in order to maintain membership commitment [...] extremists groups must regularly renew this solidarity pact” [Driscoll, 2005:11]. Several other studies show that awards and recognition are necessary for individuals to develop group identity and maintain a sense of belongingness to the group [Wong, 1985; Smith, 1998; McBreen. 2002].

#### *2.2.2.2 Compensation*

Individuals become members of organizations because they seek to have specific needs met; individuals remain members of organizations because their needs are being met [Turner, *et al*, 1987:24-25]. Renfro (2001) used these concepts to develop his

individual psychology value hierarchy in his study of profiling [Renfro, 2001:150-159]. Maslow first introduced a systematic approach to characterizing human needs in his *Hierarchy of Needs* [Maslow, 1954:80-92]. Maslow developed a hierarchical model indicating that humans respond to and satisfy our needs in the following order: Physiological, Security, Belongingness, Self-Esteem and Self-Actualization [Maslow, 1954:80-92]. In a subsequent study, Alderfer’s *Existence, Relatedness, and Growth (ERG) Theory* suggested needs were significant, but concluded their achievement “need not be in successive tiers of a hierarchy” [Alderfer, 1972:25; Renfro, 2001:14].

Alderfer’s *ERG Theory* groups the elements of Maslow’s hierarchy into three categories shown in the Table 2.1: *Existence, Relatedness, and Growth*. Alderfer groups the physiological

**Table 2.1** Integration of Maslow and ERG [Alderfer, 1972:25]

<b>Maslow's Categories</b>	<b>ERG Categories</b>
Physiological	Existence
Safety (material)	
Safety (interpersonal)	Relatedness
Belongingness (Love)	
Esteem (interpersonal)	
Esteem (self-confirmed)	Growth
Self-Actualization	

and material safety needs in the *Existence* category. Unlike Maslow, Alderfer makes a distinction between the form of security relating to physical threats and the security of one’s emotional stability [Alderfer, 1972:25]. Since interpersonal safety overlaps with one’s need to feel accepted by others, Alderfer groups this need in the *Relatedness* category along with the need to belong and have interpersonal self-esteem. Alderfer also divides esteem in to Self-Esteem in to interpersonal esteem and self-confirmed esteem. Interpersonal esteem refers to the reputation or prestige a person receives from others

[Maslow, 1954:90]. Maslow then discusses an alternate form of esteem—referring to feelings of “self-confidence, worth, strength, capability, and adequacy, of being useful and necessary in the world” [Maslow, 1954:91]. Alderfer groups the latter form of esteem in the Growth category with Self-Actualization. However, in a later work, Hughes, *et al* (2002) showed both concepts of esteem could be categorized under Relatedness [Hughes, *et al*, 2002:251]. Hughes, *et al* (2002) describes Self-Esteem as referring “to the overall positiveness or negativeness of a person’s feelings about [...] experiences and roles” [Curphy, 1993:175].

As stated earlier, the basic human needs defined by Maslow do not necessarily have to be achieved successively. Alderfer’s *ERG Theory* suggest that people often simultaneous meet two or more of these needs [Hughes, *et al*, 2002:251]. When an organization is able to meet the most important needs of a member, that person is more likely to remain committed.

### *2.2.3 Cohesion to the Organizational Principles*

The Festinger, *et al* (1950) cohesiveness component of commitment to the task has also been the topic of many research efforts. Klein expanded the Festinger, *et al* (1950) definition by simply including this component of cohesion in his description of cohesion as “the extent to which psychological forces operate to bind people together in a common purpose” [Klein, 1971:7]. Cartwright and Zander made the following statements about the members of a cohesive group:

*We think...of a group that has a strong feeling of “we-ness.” We think, too, of a group where loyalty to fellow-members is high. A cohesive group might be characterized as one in which the members all work together for a common goal, or one where everyone is willing to take responsibility for group chores.*  
[Cartwright and Zander, 1953:7]

In a 1980 study, Schriesheim followed this line of thought stating that group cohesion is “associated with acceptance of task-related roles [...] and orientation and direction of group members toward task accomplishment” [Schriesheim, 1980:184]. These studies are relevant, but they do not distinguish the importance of the cohesiveness between other members and cohesion to the task.

Years later in his study on group processes, Brown (2000) stated that cohesion was not just based on interpersonal attraction between the members, but that it was also necessary to include the attraction to the goal, idea, or cause defining the group’s purpose [Brown, 2000:47]. Brown also highlighted a significant pitfall to cohesion to a task or mission—people in the group may get too focused on accomplishing the goals that belonging to the group may no longer be a priority [Brown, 2000:47]. If members of a group are more committed to the principles of an organization rather than the organization itself, people are more likely to leave the group when they dislike how the goals are being pursued or accomplished. As a part of evaluating cohesion, it is necessary to determine the extent of the cohesion to the task to gain a better understanding of the potential fate of the group.

### **2.3 Measuring an Individual’s Bond to a Group**

There are several components of cohesion, each containing many unique elements. This research seeks to identify members of clandestine groups who may have a weak cohesive bond in one or more of these components. Yet, most research focuses on group measures or group characteristics for cohesion. There have been numerous attempts to define measures for the determinants of group cohesiveness, but most research in this area has defaulted to measuring the individual levels of attraction and

commitment rather than the entire group's cohesiveness because it was difficult to measure these elements for the entire group [Cartwright, 1968:92-93]. Several authors (van Bergen and Koekebakker, 1959; Lott, 1960; Evans and Jarvis, 1980; Griffith, 1988 and 2002) argue this widely accepted practice is an inaccurate method because cohesion is a group characteristic rather than an individual one. As a result there has been a great deal of attention given to determining accurate terminology and methodology for measuring how well individuals stick to their groups.

### *2.3.1 Attraction-to-group (ATG)*

As earlier stated, Festinger, *et al* determined the attractiveness of the group—the extent that becoming a member of the group is considered a goal and has positive valence—is a key factor which contributed to the cohesiveness of a group [Festinger, *et al*, 1950:164-165]. Attraction-to-group (ATG) a concept first termed by Deutsch, who concluded in a 1954 study that while attraction-to-group was a component of cohesion, it would be a difficult task to sum the individual scores of ATG for all the members to determine the group's cohesion [Deutsch, 1954:468]. These two studies implied anyone who was attracted to the group, including nonmembers, could be evaluated using this measure. To distinguish between members and nonmembers Deutsch (1954) suggest investigating an individual's membership motive rather than the attractiveness of the group [Deutsch, 1954:468]. The attractiveness of the group is not suited for this research effort because a primary assumption is the individuals being evaluated are already members of the organization in question. However, an individual's membership motive, i.e. the causes of their commitment, will be later explored in the next section.

van Bergen and Koekebakker, in a 1959 paper, revised ATG and defined it as “the effect of the interaction of the motives which work in an individual to remain in or to leave the group” [van Bergen and Koekenakker, 1959:83]. Cartwright followed this thought stating ATG was actually attraction to group membership [Cartwright, 1968:92]. Both studies agreed that ATG could be used to measure the group’s cohesiveness by evaluating the ATG of individuals. Evans and Jarvis revisited ATG in 1980 and define ATG as “an individual’s desire to identify with and be an accepted member of the group” [Evans and Jarvis, 1980:366]. Evan and Jarvis state that this element of cohesion intends to capture an individual’s membership motives as well as an individual’s desire to remain in the group [Evans and Jarvis, 1980:366].

van Bergen and Koekebakker developed an measure for ATG to operationally determine cohesiveness in groups that was adopted in both subsequent studies: a categorical measurement observed by whether or not the person remained in the group [van Bergen and Koekenakker, 1959:85]. When an organization maintained a low attrition rate, ATG was higher which subsequently let to higher levels of group cohesion. Unfortunately, this measure would not be particularly useful in studying clandestine organizations such as terrorist groups or suicide bombers attrition which is significantly impacted by martyrdom [Turk, 2004:273]. In addition, this study in particular seeks to identify individuals with weak bonds rather than aggregate the scores of individuals to determine the group’s overall cohesiveness.

### *2.3.2 Commitment*

Following the idea that cohesion is a group phenomenon, Griffith (1988) stated an individual’s bond to a group should be referred to as that member’s commitment rather

than cohesion [Griffith, 1988:149,165]. Griffith's distinction assumed the cohesion literature can be modified to apply to individual members of a group, in addition to the group as a whole. In their definitions of cohesion, Bartone, *et al* (2002) and Wong, *et al* (2003) also made a distinction between a group's cohesiveness and an individual's commitment; both state the commitment of members directly impacts the level of cohesion within the group [Bartone, *et al*, 2002:7; Wong, *et al*, 2003:10,20]. Although there are several different ideas surround the concept and definition of cohesion, a common consensus is that commitment is associated with turnover; a higher level of commitment suggests the member is less likely to leave the organization [Allen and Meyer, 1991:1]. These studies serve as a basis for measuring an individual's bond to a clandestine group as their level of commitment in this research.

In behavioral science and management literature organizational commitment has been commonly thought of as the bridge linking individuals to their organizations [Laka-Mathebula, 2004:2]. Similar to the literature discussing group cohesion, the literature surrounding commitment is also vast and diverse with no clear definition or set of factors for objective measuring<sup>7</sup> [Meyer and Herscovitch, 2001:300]. Military literature was initially consulted to develop a clear definition of individual commitment.

According to Gade (2003) of the U.S. Army Research Institute, the military refers to a *committed service member* as "a person who is strongly attached to his or her military service as an organization and to his or her unit as part of that organization" [Gade, 2003:163]. A study by Tremble, *et al* (2003) added to this point-of-view stating organization commitment is a useful measurement for "characterizing and understanding [the] willing and active military service of soldiers despite the associated hardships

---

<sup>7</sup> Reference Appendix B for a list of key definitions of organization commitment

[Tremble, *et al*, 2003:168]. Both of these definitions provide a useful starting point for examining an individual's commitment to an organization, but they lack the identification of clear attributes for objective measurements.

A widely used definition of organizational commitment was reviewed by Mowday, *et al* (1982), which establishes that when an individual's self-identity and social identity are defined by a group, their commitment can be characterized by three factors:

- A strong belief in and acceptance of the organization's goals and values
- A willingness to exert considerable effort on behalf of the organization
- A strong desire to maintain membership in the company [Mowday, *et al*, 1982:27].

This definition is particularly useful because the categories serve as a quick bridge to measures. However, rather than simply a motivation or a general attitude, researchers have described commitment as a *stabilizing* and *binding force* that leads an individual toward a particular course of action, independent of all other motives [Meyer and Herscovitch, 2001:301]. This is an important distinction for investigators to keep in mind because the measures will probably be subjective and must not overlap with conflicting motives.

Building on the work of Becker (1960), Kiesler (1971), Porter, *et al* (1974), and Steers (1977), Scholl (1981) distinguishes two types of organizational commitment: *attitudinal* and *behavioral*, described below:

- *Attitudinal: An employee attitude or...a set of behavioral intentions, such as a desire to remain with the organization, an intention to exert high levels of effort on behalf of the organization, and an identification with the organization's goals [Scholl, 1981:589]*
- *Behavioral: A force tying the individual to a specific organization [Scholl, 1981:590]*

Scholl states behavioral commitment uses the concept of “investments” to measure the commitment of the members. Investments may come in the form of money, time, acquiring a special skill, or any other forgone alternative opportunity [Meyer and Allen, 1991:72]. Therefore, it follows that members with higher investments will have a lower propensity to leave the organization than those with lower investments [Scholl, 1981:593].

A third category of organizational commitment was introduced years after Scholl’s research as a means to capture an individual’s moral obligation to their organization. Researchers (Meyer and Allen, 1991; Becker, *et al*, 1995) have referred to this third type of organizational commitment as *normative commitment*. Weiner (1982) defines normative commitment as “the totality of internalized normative pressures to act in a way which meets organizational goals and interests” [Weiner, 1982:421]. This implies there is a psychological obligation, independent from the individual’s attitude and behavior, driving them to remain loyal to their group. Braver (1995) summarizes the concept this way:

*When an individual freely gives a public commitment to almost any behavior, he is very likely to actually enact this behavior and will feel a great deal of psychological turmoil if for some reason he does not [Braver, 1995:75].*

Allen and Meyer (1990), Meyer and Allen (1991), and Meyer and Herscovitch (2001) have become the authority in modeling organizational commitment in the field of Work and Organizational Psychology and Human Resource Management [Lakamathebula, 2004:29]. Meyer and Allen (1991) define organizational commitment as

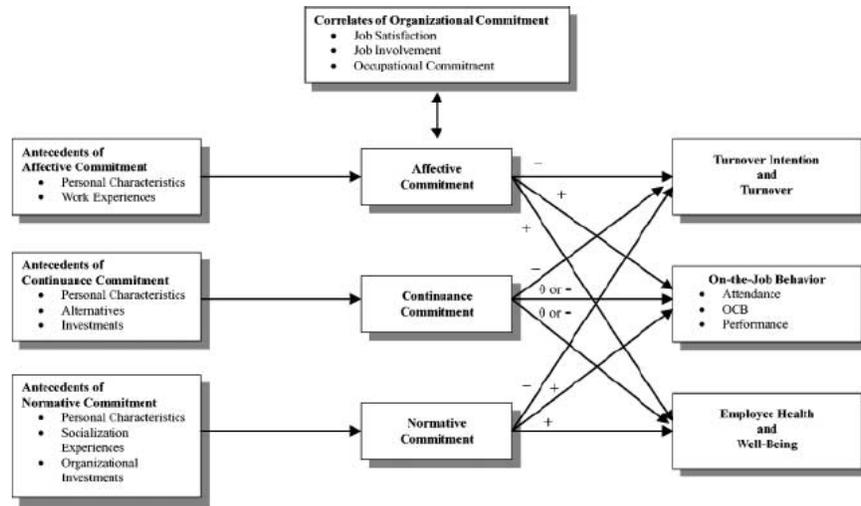
*A psychological state that (a) characterizes the employee’s relationship with the organization and (b) has implications for the decision to continue membership in the organization [Meyer and Allen, 1991:67].*

Allen and Meyer (1990) also agreed with the attitudinal, behavioral, and normative distinctions made between types of commitment and developed multidimensional model of organizational commitment. Their model of organizational commitment assumes that each dimension of commitment is significant and leads to different outcomes and implications in the workplace.

Allen and Meyer's model considers three dimensions of commitment: *affective commitment (AC)*, *continuance commitment (CC)*, and *normative commitment (NC)* [Allen and Meyer, 1990:2]. The first dimension, affective commitment, "refers to the emotional attachment, identification with, and involvement in the organization" [Allen and Meyer, 1990:2]. This element captures the *want to* perspective of an individual's commitment [Allen and Meyer, 1991:67]. AC can also lead to several positive outcomes in the workplace [Meyer and Herscovitch, 2001:312]. Continuance commitment "refers to an awareness of the costs associated with leaving the organization" [Allen and Meyer, 1990:3]. This dimension represents the *need to* aspect of commitment [Allen and Meyer, 1991:67]. The final dimension is normative commitment, which is described as "a feeling of [moral] obligation to continue" to remain a member of an organization [Allen and Meyer, 1990:3]. This concept is contributes the *ought to* characteristic of individual commitment [Allen and Meyer, 1991:67; Gade, 2003:164].

Figure 2.1 is a pictorial representation of Meyer and Allen's Three-Component Model of Organizational Commitment applied to a corporation. It illustrates how the three components of organizational commitment impact turnover, employee behavior, and employee well-being. It is clear that the three commitment components are

significant to maintaining members of an organization (in this case, employees in business).



**Figure 2.1** Three-Component Model of Organizational Commitment [Meyer, *et al*, 2002:22]

As shown by the reviewed literature, commitment, similar to cohesion, has several critical components. Following the research of Meyer and his colleagues (Allen and Meyer, 1990; Meyer and Allen, 1991; and Meyer and Herscovitch, 2001), in this study commitment will also be expressed as a multidimensional construct used to describe an individual's attachment and loyalty to their organization.

## 2.4 Benefits of Cohesion and Commitment in Groups

Throughout the many years of research surrounding the cohesiveness of groups, researchers have identified several positive results of its presence and maintenance. Table 2.2 lists the benefits of cohesion and the studies that discussed these positive aspects.

**Table 2.2** Benefits of a cohesive group

<b>Benefits of Group Cohesion</b>	<b>Source</b>
Fewer Casualties	McBreen (2002)
Low Attrition	Griffith (1988, 2002), Friedkin (2004)
High Morale	Griffith (1988), Brown (2000)
Greater Task Performance	Mullen and Cooper (1995), Griffith (2002)
Cohesion (to maintain you must first have it)	Wong (1985)
Individual Performance	Griffith (2002)
Higher Investment in the Group	Evans and Jarvis (1980)
Maintain membership under stress	Griffith (2002)
Conforming to group norms	Brown (2000)
Stronger interpersonal relationships	Brown (2000)

Goman (1991) states there are also several positive effects on a group that results from having committed members, listed in Table 2.3. The benefits of having committed individuals are similar to the positive effects of cohesion on organizations.

**Table 2.3** Benefits of having committed members [Goman, 1991:13]

<b>Group Benefits of Highly Committed Individuals</b>
High quality product
Increased production and performance
Low attrition and turnover
Good reputation (based on member opinions)
High morale
High team spirit
Ability to recruit new members

For clandestine groups, building cohesion through committed individuals is more vital because of their need to operate in secrecy. This research has built on the benefits of having an organization of committed individuals to determine the values and identify

operational measures to evaluate the commitment level for an individual member of a clandestine network, in addition to the area of their weaknesses, in order to diminish the cohesion of the entire organization.

## **2.5 Definitions and Research Scope**

Based on the literature, this study views cohesion as a group property and defines it as *the ability of a group to maintain membership and accomplish its goals*. Commitment is regarded as an individual attribute and is defined as *the dedication of an individual to the members of their primary group, their organization, and the principles of that organization*. The methods and measures presented in the cohesion and commitment literature has been adjusted in order to capture an individual's perspective and measure the commitment of the members of a clandestine organization.

An important aspect to bear in mind is that the focus of the study is on clandestine networks, which are further explained in the next section. All of the literature consulted to understand group cohesiveness utilized questionnaires to gather data for analysis. Several studies also engaged in open observations of groups in their natural surroundings to draw conclusions about the group's cohesiveness. By their nature, clandestine groups practice Operations Security (OPSEC) to operate in secrecy because they do not want their inner-workings or members publicly known [Clark, 2005:4]. The group cohesion and individual commitment literature serves as a guide to understand cohesion, but the determinants of cohesion in the model are modified to apply to a clandestine group. For instance, rather than collecting data for a specific group via questionnaires, data will be obtained through research and intelligence sources. Fissures of cohesion can be exploited only after the inner-workings of the group are known.

## 2.6 Clandestine Groups

### 2.6.1 Definition and Disadvantages of Clandestine Groups

A clandestine group, also known as a secret society, is a network of individuals operating in secrecy in order to maintain the integrity of the group as well as conceal their plans, activities, and missions from those not apart of the group [Erickson, 1981:189]. Simmel, author of an early systematic study on clandestine groups, states that a group that begins operating in secrecy must always continue to for one main purpose: protection [Simmel, 1906:470]. All clandestine groups are not necessarily seeking protection from the law, but they are seeking to conceal their way of life from people who not members. Simmel (1906) and Erickson (1981) accurately describe the nature of the current enemies of the United States. Learning the inner workings of these covert organizations will significantly aid in the success of the United States and its allies in the GWOT [Stout, 2004:62]. The concept of studying the weaknesses and strengths of an enemy has been a military art throughout the history of conflict; it was presented in *The Art of War* by Sun Tzu:

*If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle [Sun Tzu: 1963:84].*

While the GWOT is unconventional, Sun Tzu's message remains crucial to success because of the inherent advantage gained by knowing the enemy.

There are inherent difficulties with collecting information on clandestine groups since they operate in secrecy. Most of what is known about our enemies and similar groups has been gathered through intelligence operations, interviews and interrogations of members in custody, media releases, and autobiographical sources [Taylor, 1988:147].

Sparrow (1991) observed three obvious obstacles of attempting to learn as much as possible about clandestine networks in his study of criminal networks.

1. *Incompleteness—the inevitability of missing nodes and links that the investigators will not uncover.*
2. *Fuzzy boundaries—the difficulty in deciding who to include and who not to include.*
3. *Dynamic—these networks are not static, they are always changing.*  
[Sparrow, 1991:262]

Though these drawbacks are present, there should still be an attempt to investigate clandestine groups in order to diminish the current global terrorist threat.

### *2.6.2 Nature of Clandestine Groups*

Similar to overt groups, clandestine groups exist to fulfill a purpose and/or accomplish an objective [Krebs, 2002:43]. In order to complete their tasks, clandestine groups must maintain a constant balance of OPSEC, even at the expense of efficiency [Krebs, 2002:46]. This method was illustrated by a successful clandestine network significant to our nation's history, The Underground Railroad. This network freed numbers of African-Americans from slavery prior to the Civil War. The escape routes were virtually untraceable because the runaway slaves participating in the Underground Railroad were instructed, by communicating through quilt stitching, to “stagger their path” to avoid being traced and subsequently captured [Bohde, 2005:76]. Several other covert measures were executed, including coded methods of communication, directional maps, and safe-house markers, which directly aided in the survival of the Underground Railroad.

Operating in secrecy not only allows the group to complete its mission, but it also creates a strong bond of trust among the group members because an *us versus them*

existence has been established. From his studies on secret societies, Simmel suggests that when a group chooses to operate in a covert manner, the nature of the relationship between its members must also be secretive [Simmel, 1906:470]. Erickson added that the best way to ensure the bonds of loyalty and trust are present is to rely on ties from prior relationships for potential recruits [Erickson, 1981:188]. While this greatly diminishes the availability of potential members of the group, it also diminishes the likelihood of a security breach that may jeopardize the group's existence.

Some clandestine groups are further forced to operate in a covert manner because of the illegal activities involved in accomplishing their mission. These groups can be classified as street gangs, organized crime associations, or terrorist organizations (i.e. extremists groups). This thesis will focus specifically on terrorist organizations because they are currently the most imminent threat to the United States. However, research of street gang, organized crime units, and even religious cults were used as because of the strong parallels between the covert methods of recruiting and maintaining security between the different groups.

### *2.6.3 Membership into Terrorist Organizations*

Each terrorist organization has its preferred method of recruitment and training that will best protect its way of life. For example, the Malayan Communist Party befriended Chinese locals in order to quickly build their membership [Stubbs, 2004:49]. Conversely, al Qaeda relies heavily on prior existing relationships (i.e. friendships, kinships, etc.) in order to gain trustworthy members and remain a clandestine network [Sageman, 2004:111,172]. Some members clandestine organizations may have felt they

had no choice in joining the organization because of their family connections to the group (i.e. organized crime families) or because their life was being threatened.

In *Understanding Terror Networks*, Sageman lists three common features explaining why individuals become involved in a clandestine group, specifically a terrorist organization [Sageman, 2004:69].

- Terrorists share a common social background
- Terrorists share a common psychological make-up
- People became terrorists because of their particular situation at the time of recruitment

Sageman found that most members of the terrorist groups al Qaeda and Jemmah Islamiya (JI) were “socially and spiritually alienated and probably in some form of distress” just before they joined [Sageman, 2004:98]. In her study of a clandestine organization of suicide bombers, Driscoll confirms Sageman’s findings. She states that prior to joining any type of extremist group, the majority of people had recently experienced some sort of life trauma which causes the individual to lose faith in their current life pattern and become vulnerable to groups who promise a better life [Driscoll, 2005:7]. According to Driscoll, individuals who had encountered the trauma of “the death of a loved one, the loss or disruption of a stable environment, physical or psychological wounding, such as humiliation, dishonor or disgrace” were more likely to join clandestine extremists groups [Driscoll, 2005:7].

## **2.7 Value-Focused Thinking (VFT)**

### *2.7.1 Decision Analysis and VFT*

“Operations Research is intended to improve decision making; and values, indicating what one wants to achieve, are essential for guiding decision making” [Keeney, 1994(b):793]. Decision Analysis (DA) is a “widely accepted prescriptive theory” for making logically sound decisions [Keeney and Raffia, 1993:xi]. In their article discussing the benefits of making systematic decision to the operations research community, Corner and Kirkwood define DA as “a set of quantitative methods for analyzing decisions which use expected utility as the criterion for identifying the preferred decision alternative” [Corner and Kirkwood, 1991:206]. Each day several decisions are made based on the alternatives presented and later justified using analysis. However, DA allows the decision maker to gain a clearer understanding of the problem context and provides a “conceptual framework” for developing and selecting alternatives [Clemens, 2001:2]. There are several different modeling approaches to implement DA. Value-Focused Thinking (VFT) is the methodology utilized in this study.

The basis of VFT is that it is more important to know the values of the decision maker, rather than the available alternatives, in order to accurately assess what is important when one is faced with a decision opportunity [Keeney, 1992:3]. A value structure “encompasses the entire set of evaluations considerations, objectives, and evaluation measures” for any decision opportunity [Kirkwood, 1997:12]. Keeney describes values as “what we fundamentally care about;” “the driving force of our decisionmaking;” and “principles used for evaluation” when faced with a decision [Keeney, 1994(b):793;1992:6]. The available “alternatives are relevant only because

they are means to achieve values” [Keeney, 1994:33]. The five steps to making a decision using VFT are shown in Table 2.4.

**Table 2.4** Steps to Decision Making using VFT [Keeney, 1992:49]

<b>VFT Decision Making Steps</b>	
1.	Recognize a decision problem
2.	Specify values
3.	Create alternatives
4.	Evaluate alternatives
5.	Select an alternative

In short, rather than making a decision based solely on alternatives, VFT utilizes the knowledge of a decision-maker’s values to start at the ideal solution and work towards making it a reality [Keeney, 1992:6].

### *2.7.2 Value Model Development*

In the classic story, *Alice in Wonderland*, Lewis Carroll wrote: “If you don’t know where you are going, any road will do.”<sup>8</sup> When making a decision it is not wise to wonder aimlessly hoping for a decision to eventually be made. Objectives serve as a roadmap during the decision making process. In fact, Kirkwood states than an objective is “the preferred direction of movement with respect to an evaluation consideration” [Kirkwood, 1997:12]. Keeney defines an objective as the goal to be achieved by making the decision characterized by a decision context, an object and a direction of preference [Keeney, 1992:34]. In the context of VFT, the values of the decision-maker are made explicit by identifying the objectives [Keeney, 1992:33]. Keeney and Kirkwood distinguish between two types of objectives: fundamental and means. *Fundamental*, or

---

<sup>8</sup> Lewis Carroll Quote, found at <http://www.legendinc.com/Pages/ArchivesCentral/QuoteArchives/Leadership.html>

*ends*, objectives “qualitatively state all that is of concern in the decision context” and state the reason for the interest in the decision opportunity [Keeney, 1992:34]. Table 2.5 shows the desirable properties of fundamental objectives given by Keeney.

**Table 2.5** Desirable Properties of Fundamental Objectives [Keeney, 1992:82]

<b>Desirable Properties of Fundamental Objectives</b>	
<i>Essential</i>	To indicate consequences in terms of the fundamental reasons for interest in the decision situation
<i>Controllable</i>	To Address Consequences that are influenced only by the choice of alternatives in the decision context
<i>Complete</i>	To include all fundamental aspects of the consequences of the decision alternatives
<i>Measurable</i>	To define objectives precisely and to specify the degrees to which objectives may be achieved
<i>Operational</i>	To render the collection of information required for an analysis reasonable considering the time and effort available
<i>Decomposable</i>	To allow the separate treatment of different objectives in the analysis
<i>Concise</i>	To reduce the number of objectives needed for the analysis of a decision
<i>Understandable</i>	To facilitate generation and communication of insights for guiding the decisionmaking process

*Means* objectives are those that give implications for a more fundamental objective to be achieved [Kirkwood, 1997:22]. Fundamental and means objectives are broken down into measures which allow the decision maker to access the degree of attainment of the objective [Kirkwood, 1997:12].

The objectives and measures can be placed in a hierarchical diagram known as a value hierarchy to facilitate communication among the stakeholders and decision-makers, as well as identify and evaluate alternatives [Kirkwood, 1997:23]. The top most tier of the hierarchy should reveal the decision-maker’s top-level objectives; each lower tier should further define the entry above it until an attribute can be defined to measure the top-level objective. This process is called *specification*, which Keeney and Raffia define

as “subdividing an objective into lower-level objectives of more detail, thus clarifying the intending meaning of the more general objective” [Keeney and Raffia, 1993:41]. A value hierarchy built by identifying the top-level objectives then stating sub-objectives has a top-down or objectives-driven structure [Kirkwood, 1997:20-21]. Otherwise, the value hierarchy has a bottom-up structure. Table 2-6 shows the desirable properties of value hierarchies explained by Kirkwood:

**Table 2.6** Desirable Properties of Value Hierarchies [Kirkwood, 1997:16-19]

<b>Desirable Properties of Value Hierarchies</b>	
<i>Completeness</i>	At each level of the hierarchy, the group of objectives identified must capture all aspects of the problem important to the decision-maker
<i>Nonredundancy</i>	No two evaluation consideration in the same layer or tier of the hierarchy should overlap. Implies the objectives as a group are mutually exclusive
<i>Decomposability (Independence)</i>	Elements of a hierarchy must be able to be assigned value or independence independent from all other measures and objectives
<i>Operability</i>	The value hierarchy should be understood by all who use it
<i>Small Size</i>	Smaller is better because it allows easier communication to stakeholders and decision-makers, and requires fewer resources to estimate the degree of attainment for the top-level objectives

### 2.7.3 Measuring the Attainment of Objectives

Once top-level objectives and sub-objectives have been identified, there needs to be a way to determine how well the measures achieve the objective. Keeney defines as attribute as “the degree to which an objective is met” [Keeney, 1992:100]. In order to make this assessment, the analyst should develop a scale to evaluate how the attributes meet the objectives. Kirkwood discusses four scales to evaluate attributes:

- *Natural*: general use of this measurement is understood by everyone
- *Constructed*: developed for a particular decision problem to evaluate the degree of attainment of an objective
- *Direct*: straightforward measurement attainment of an objective
- *Proxy*: reflects the degree of attainment of its associated objective, but does not directly measure it [Kirkwood, 1997:24]

Table 2.7 gives an example of each interaction of the four scales.

**Table 2.7** Examples of Evaluation Measure Scales

	<b><u>directed</u></b>	<b><u>proxy</u></b>
<b><u>natural</u></b>	<i>Profit in dollars</i>	<i>Diving Competition Scoring</i>
<b><u>constructed</u></b>	<i>Gross National Product</i>	<i>School exams</i>

An example of natural-directed attributes is profit in dollars is a measurement generally understood by everyone regardless of the context. In any given situation higher profit is typically understood to be more desirable. The scoring obtained in a diving competition is a natural-proxy attribute. While the competition is clearly focused on the selection of the best diver the scoring is subjective and based on elements of the dive that do not necessarily indicate the best athlete, rather the diver who could accomplish difficult dives, achieve the most impressive position on the way down, and have minimal splash on entry. As a result, the diving competition score could possibly reveal different top divers on separate occasions.

Gross National Product (GNP) is an example of a constructed-directed attribute because its formula is designed to capture several aspects of the economy in order to

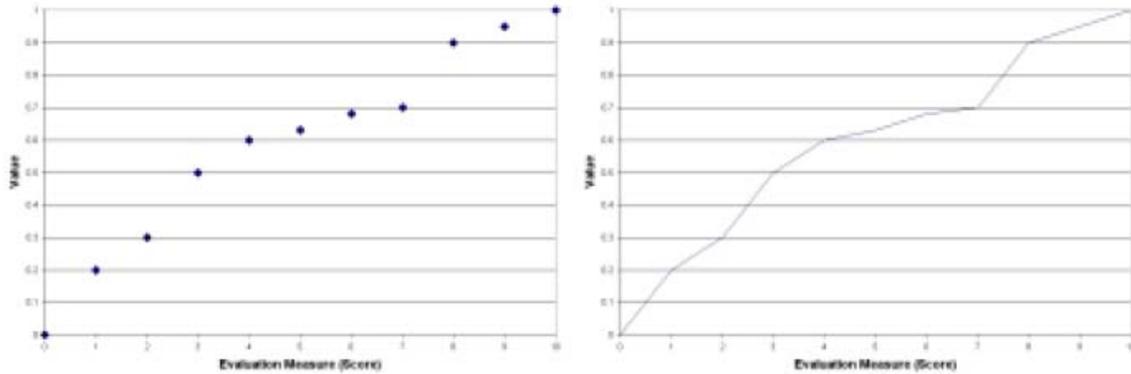
directly measure a country's economic well-being. Even though this measurement is a widely accepted measurement for the economic welfare of a country, it is not a natural measurement because it would not be understood by countries that are not familiar with the concept or the formula [Kirkwood, 1997:24]. School exams are constructed-proxy measurements because the typical 0-100 and 0.0-4.0 grade scales were developed and are not necessarily understood by all people in every context, especially those who are evaluated on a 0.0-5.0 scale. In addition, tests are often made up by instructors as a means of evaluating how much a student knows in a given period of time. This measurement is widely accepted, yet is not direct. A direct way to determine how much a student knows at the time of an exam might be to stick a meter in a student and take a reading. However, this technology has not yet been developed leaving exams as the next best solution.

Once the scales of each measure have been identified, individual scoring functions must be developed. This allows the decision maker to logically quantify the measures according to their overall importance to achieving the objectives.

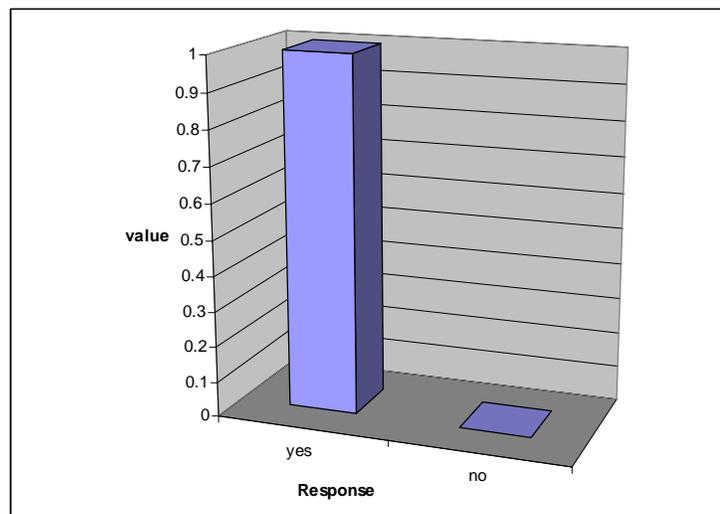
#### *2.7.4 Single-Dimensional Value Functions*

There needs to be a means to assess the quantitative value of a measure after the scales for each measure have been identified. A single-dimensional value function (SDVF) is a monotonically increasing or decreasing function for each measure used to convert a measure's score on the x-axis to a value on the y-axis, denoted by  $v(x)$ . The purpose of the SDVF is to provide a value of a measure, typically between 1.0 and 0.0, based on the score given by the decision maker [Kirkwood, 1997:68]. These value functions may be discrete, including categorical functions, piecewise linear, or

continuous as shown in Figure 2.2. Figure 2.3 gives the graphical representation of one of the simplest examples of a categorical SDVF—a measure can be scored with a yes or no response.



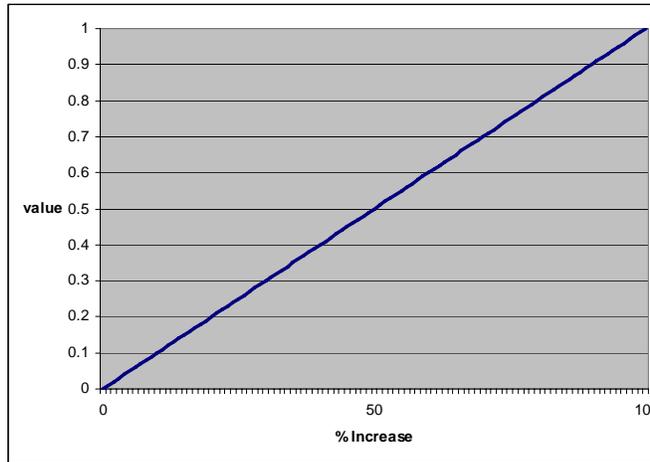
**Figure 2.2** Discrete and Continuous SDVFs [Kirkwood, 1997:61]



**Figure 2.3** Categorical SDVF

In addition to graphical representations, SDVF can also be represented with a mathematical function. This is typical if the value function is continuous and there are an infinite number of possibilities for the assessment of the decision maker’s score. It must be monotonically increasing or decreasing. There are several types of continuous SDVFs including linear functions, and S-curves and exponential functions. An example of a

linear SDVF is shown in Figure 2.4. It reveals the decision maker values every percent increase is equally weighted.



**Figure 2.4** Linear SDVF

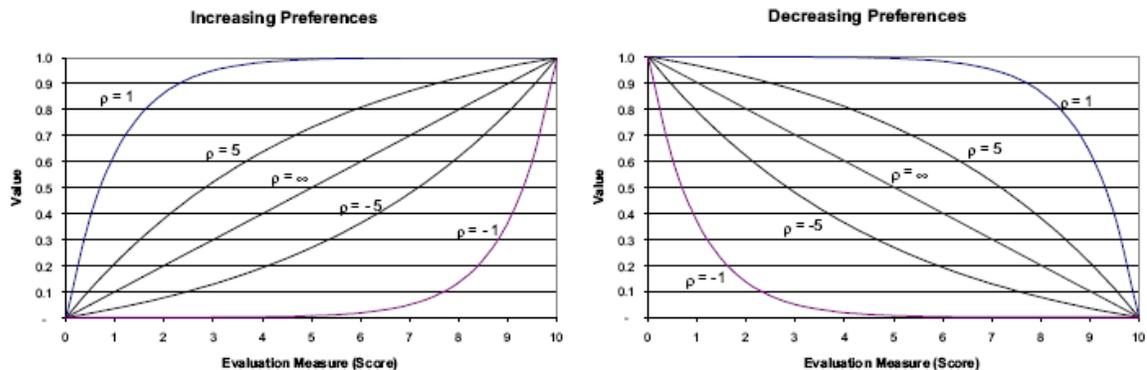
Where diminishing returns are present, the *exponential* mathematical function might be used, and the mid-point value is the only score required by the decision maker. The mid-point value represents the *exponential constant*,  $\rho$  (Greek Letter *rho*), which determines the shape of the value functions. Measures with high  $\rho$  values have larger curves while measures with higher  $\rho$  values have flatter value function curves [Kirkwood, 1997:65]. The equations for monotonically increasing and monotonically decreasing functions are given in Equations 2.1 and 2.2. Following the equations are examples of exponential SDVF are given in Figure 2.5.

$$v(x) = \begin{cases} \frac{1 - \exp[-(x - Low) / \rho]}{1 - \exp[-(High - Low) / \rho]}, \rho \neq \infty \\ \frac{x - Low}{High - Low}, otherwise \end{cases}$$

**Equation 2.1** Monotonically Increasing Single-Dimensional Value Function [Kirkwood, 1997:65]

$$v(x) = \begin{cases} \frac{1 - \exp[-(High - x)/\rho]}{1 - \exp[-(High - Low)/\rho]}, \rho \neq \infty \\ \frac{High - x}{High - Low}, \text{otherwise} \end{cases}$$

**Equation 2.2** Monotonically Decreasing Single-Dimensional Value Function [Kirkwood,1997:65]



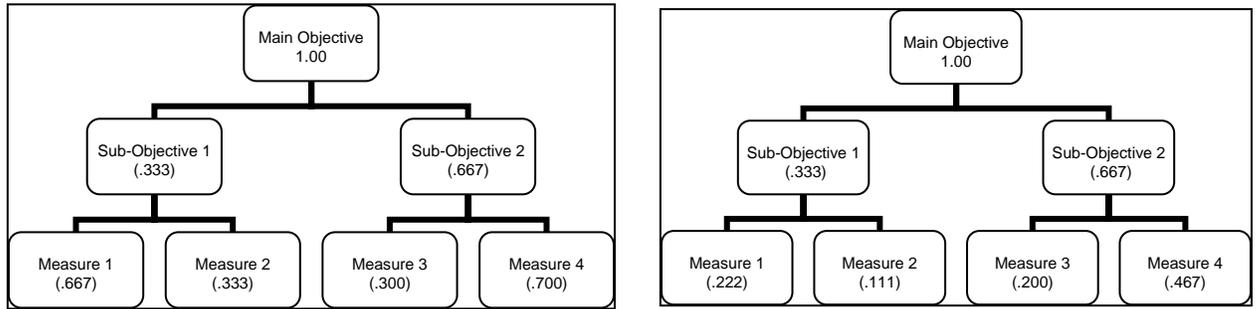
**Figure 2.5** Exponential Single-Dimensional Value Functions [Kirkwood, 1997:65]

Single-dimensional value functions are developed for each measure within the hierarchy. Once this is complete, the decision maker must give weights for each measure to show their preference between the objectives.

### 2.7.5 Determining the Weights of Each Measure

After developing a SDVF for each measure, the final step of determining the value function takes place: soliciting weights. The purpose of weighting each measure is to have the decision maker identify his preferences among the objectives. Kirkwood describes a weight as the “increment in value that is received from moving the score on that evaluation measure from its least preferred level to its most preferred level” [Kirkwood, 1997:68]. Local weights are assessed by the decision maker through pairwise comparisons of value tradeoffs between each measure, and then converted to global

weights by multiplying the local weights down the hierarchy. An example of local weighting versus global weighting is shown in Figure 2.6.



**Figure 2.6** Local Weights (left) versus Global Weights in a Value Hierarchy

The rationale behind calculating global weights is to normalize the overall score, i.e. the sum of the weights must equal one. As a result the additive value function can be used, shown in Equation 2.3.

$$v(x) = \sum_{i=1}^n \lambda_i v_i(x_i)$$

**Equation 2.3** Additive Value Function

Where,

- $\sum_i \lambda_i = 1$  is the requirement for normalization;
- $n$  is the number of objectives (or the number of single dimensional value functions);
- $\lambda_i$  is the *global* weight for the  $i^{\text{th}}$  objective;
- $v_i(x_i)$  is the value of the alternative with respect to the  $i^{\text{th}}$  objective; and,
- $v(x)$  is the overall value of an alternative [Hamill, 2000: 2-31].

The values calculated using the designated value functions are ordinal only; their only purpose is to provide ranking order for the alternatives. Consider an example where a decision must be made and, through VFT, two feasible alternatives have been identified. If Alternative 1 receives a value,  $v_1(x) = .70$ , and Alternative 2 receives a value,  $v_2(x) =$

.35, it is incorrect to assume Alternative 1 is twice as good as Alternative 2. Given this information, the only logical conclusion is that Alternative 1 has more value to the decision maker than Alternative 2. In order to determine whether Alternative 1 is always dominant, sensitivity analysis must be performed on the weights of each measure.

#### *2.7.6 Sensitivity Analysis*

A sensitivity analysis can be performed to test the underlying assumptions of the value model [Kirkwood, 1997:82]. Sensitivity analysis is a useful tool to determine the impact on the ranking of the alternatives by changing the weights for each measure. If the model is insensitive to the current weights, then the rankings of the alternatives will not change as the weights are altered. However, in a sensitive model the rankings of the alternatives will change as the weights are changed. If the model is found to be highly sensitive, then further analysis should be conducted to ensure the underlying assumptions of the model are correct.

### **2.8 Summary**

This chapter reviewed literature on the organizational theory of group cohesion, research on clandestine groups, and Value-Focused Thinking (VFT). The literature revealed several important factors that influence an individual's cohesion to public organizations. Chapter 3 will apply the literature surrounding commitment and cohesion to clandestine organizations VFT to dissect and rank an individual's cohesion to a clandestine group.

### **3. Methodology**

*Knowing is not enough; we must apply. Willing is not enough; we must do.*<sup>9</sup>

#### **3.1 Introduction**

This chapter describes the development of a first cut commitment hierarchy to gauge an individual's commitment to a clandestine group of violent extremists. It is based on the literature reviewed in Chapter 2. A Value-Focused Thinking (VFT) – like approach is used in this thesis because it provides a methodology to logically and strategically identify and score the significant determinants of a clandestine group member's commitment to the organization. This chapter begins by discussing the top two tiers of the commitment hierarchy. A limited discussion of the successive tiers and measures will then be presented to give a basic understanding of the model development. A full description of each measure, including the definition, and single-dimension value function, and scoring methods, may be referenced in Appendix C.

#### **3.2 VFT-like Approach to Individual Commitment**

Value-Focused Thinking is a decision making process that identifies the values of the decision maker to frame the problem, scope the objectives, create alternatives, develop measures, and evaluate the alternatives to make logical recommendations [Keeney, 1994:793]. In this study, they will not be typically be one decision maker. The decision makers will include the appropriate personnel with the level of understanding of the organization or group being studied in order to yield the accurate weighting for the hierarchy.

---

<sup>9</sup> Johann Wolfgang von Goethe Quote, "*BrainyQuote: Johann Wolfgang von Goethe Quotes*," 2006.

From the literature, it is clear there are several factors to consider when measuring individual commitment in an organization, as well as the group's overall cohesiveness. The hierarchy developed in this thesis used the organizational commitment and group cohesion literature as a guide to identify the significant observable values of an individual's commitment to a clandestine organization, and develop measures to objectively score and rank individuals based on their revealed level of commitment.

### *3.2.1 Significance of Modeling Individual Commitment in Clandestine Groups*

Today's enemies deliberately operate in secrecy, making the understanding of their inner-workings extremely valuable information. As stated in Chapter 2, knowledge of the enemy in a conflict situation is vital to the success of any standing force. There have been numerous attempts made to understand the psychology of terrorists. Taylor (1988) concluded the most successful approach has been through studying and evaluating individual members of a terrorist organization for a variety of reasons [Taylor, 1988:147]. Two of those reasons serve as the basis for this research approach. First, most terrorist organizations are typically composed of individuals with similar morals and values, they are heterogeneous groups with respect to of their different skills required to make a terrorist organization work [Taylor, 1988:147]. Second and most important, Taylor (1988) maintains that psychological profiling of terrorists is futile because the general characteristics of a terrorist are present in society as a whole [Taylor, 1988:157].

This research evaluates the commitment level of individual members of a terrorist organization in order to identify their specific vulnerabilities. By gauging the commitment level of individuals in a clandestine organization and the factors contributing to their lack of commitment, the United States can target these people in

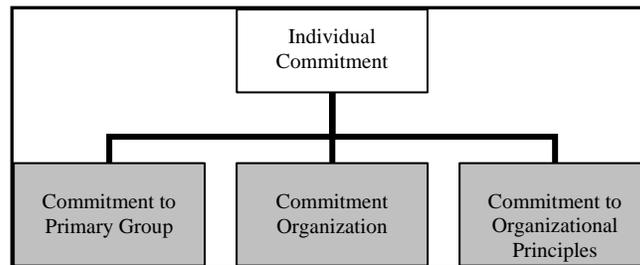
order to further accomplish our goals. For example, if the government desires to break apart a terrorist organization, one tactic would be to identify the least committed individual with significant influence over other members and turn them against the organization. Recognizing the factors influencing a person commitment is different from profiling because the individuals being studied are already known members of a clandestine group. In addition, this model has the ability to be altered for a specific organization or culture. Finally, the overall goal is to identify a specific means to diminish the individual's commitment rather than a general mold of what makes an individual committed.

### *3.2.2 Modeling Individual Commitment in Clandestine Groups*

The first step in any decision analysis problem is recognizing the most critical element of the problem: the decision that needs to be made [Clemen and Reilly, 2001:5]. In this study, the decision is: *accurately identify the least committed members of the clandestine insurgency group in order to exploit the cohesiveness of the group.* When implementing Value-Focused Thinking (VFT), the next step is to identify values of the decision makers [Keeney, 1992:49]. The values in this research will consist of significant factors that contribute to an individual's exploitable commitment to a clandestine organization. The members of the clandestine group will be evaluated according to the single-dimension value functions developed for each measure in the commitment hierarchy. The weights for the hierarchy will also be solicited from the decision makers, who are experts on the group being studied. There is a full discussion on weights in Chapter 2. The members of the group will be selected for Influence

Operations targets based on their identified vulnerabilities from the commitment hierarchy developed in this research.

Based on the Festinger, *et al* (1950) proposal and subsequent research, there are three significant areas of individual commitment in a group: the primary group, the organization, and the organizational principles. These three areas are the top level of the hierarchy evaluating individual commitment to a clandestine group, shown in Figure 3.1.



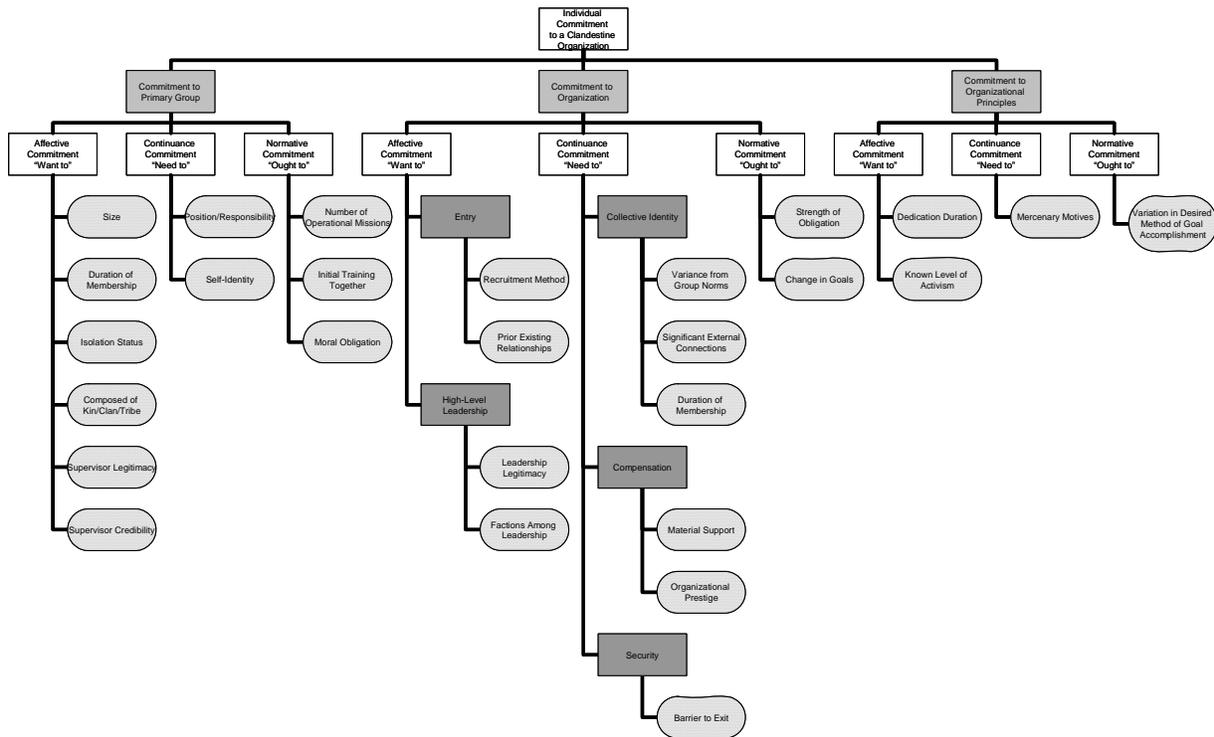
**Figure 3.1** Top of the Individual Commitment Hierarchy

Meyer and Allen's (1990) three-component model of organization commitment reveals there are three types of commitment that will exist toward each of these entities: affective, continuance, and normative. Table 3.1 provides the definitions of the three commitment types. Each of the three bonds in the top-level will be divided into these three components of commitment in order to accurately develop measures.

**Table 3.1** Summary of the three components of organizational commitment

<b>Commitment Type</b>	<b>Definition</b>	<b>Description</b>
Affective	<ul style="list-style-type: none"> <li>• An individual's "emotional attachment to, identification with, and involvement in the organization" or supporting a cause [Meyer and Allen, 1991:67]</li> <li>• The emotional attachment, identification with, and involvement in the organization [Allen and Meyer, 1990:2]</li> </ul>	<i>Want to</i>
Continuance	<ul style="list-style-type: none"> <li>• An individual's "awareness of the costs associated with leaving the organization" or discontinuing their support of a cause [Meyer and Allen, 1991:67]</li> <li>• An awareness of the costs associated with leaving the organization [Allen and Meyer, 1990:3]</li> </ul>	<i>Need to</i>
Normative	<ul style="list-style-type: none"> <li>• An individual's feeling of moral obligation to remain in the organization or continue to support its cause [Meyer and Allen, 1991:67]</li> <li>• A feeling of moral obligation to continue to remain a member of an organization [Allen and Meyer, 1990:3]</li> <li>• The totality of internalized normative pressures to act in a way which meets organizational goals and interests" [Weiner, 1982:421]</li> </ul>	<i>Ought to</i>

Figure 3.2 shows how each of these will be included in this hierarchy, along with the subsequent measures, to capture pertinent aspects of an individual's commitment to a clandestine group. The rectangles represent the different levels of objectives while the ovals represent measures.



**Figure 3.2** Individual Commitment to a Clandestine Group Hierarchy

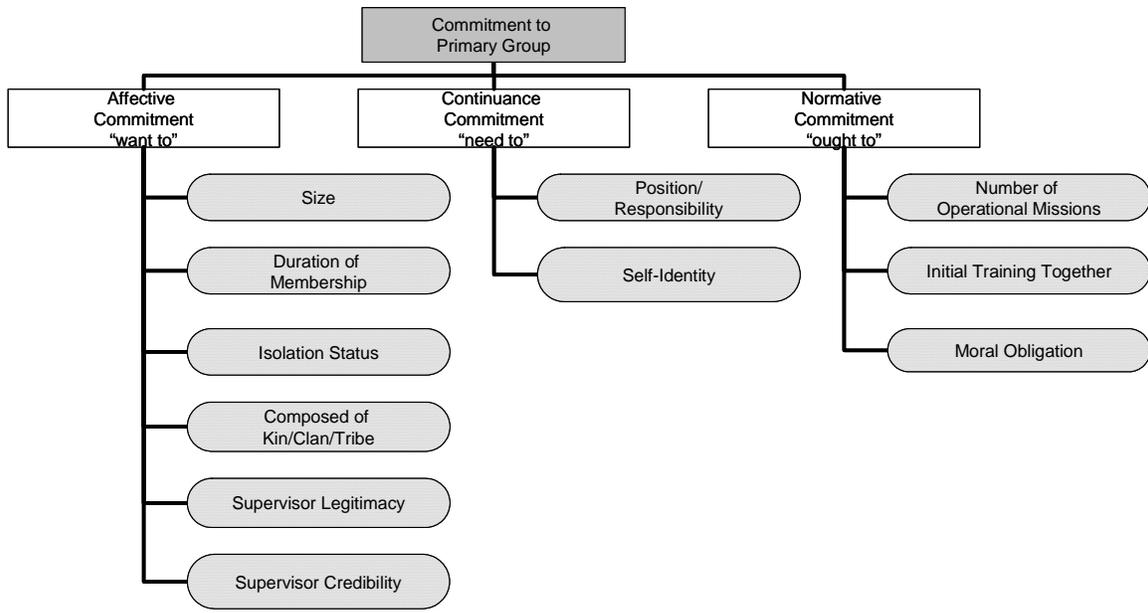
Commitment to Primary Group

It is clear from the studies of Festinger, *et al* (1950), Piper, *et al* (1983), Griffith (1988), Stewart (1991), and McBreen (2002), among others, that the interpersonal bonds created and developed between members of a group is significant to maintaining horizontal group cohesion. Several researchers (Molnar, 1965; Johns, *et al*, 1984; Henderson, 1985; Wong, 1985; Manning, 1991; Watson, 1997; Brown, 2000) have stated people develop and maintain closer bonds with their primary group than with other members of the organization. These reports have shown frequent interaction in small groups is critical to the development of interpersonal bonds. In addition, these studies reveal the completion of stressful events plays an important role in building commitment among members and the cohesion of the group. McCauley (2004) observed that every standing army seeks to accomplish one important task terrorist groups have mastered: “to

link a larger group cause with the small-group dynamics that can deliver individuals to sacrifice” [McCauley, 2004:45].

The definition of *frequent* and *small* will be specific to each group. However, in this study frequent interaction refers to the member having more dealings with this group of people than the group as a whole. These interactions do not necessarily have to be face-to-face; frequent interactions include interactions via cyberspace, telephone, and mail because these technologies keep clandestine organizations communicating while being untraceable. A small group simply refers to a subset of the members of the entire organization. Whether a bonding event is considered stressful will also be group-dependent. For example, if the example group were a Navy SEAL team completing a combat mission, the scale of intensity of their activities would be vastly different than an evaluation of the members of a state-side USAF personnel flight facing an Inspector General (IG) review. For this reason, the members will only be evaluated on their commitment level relative to other members of the same clandestine group.

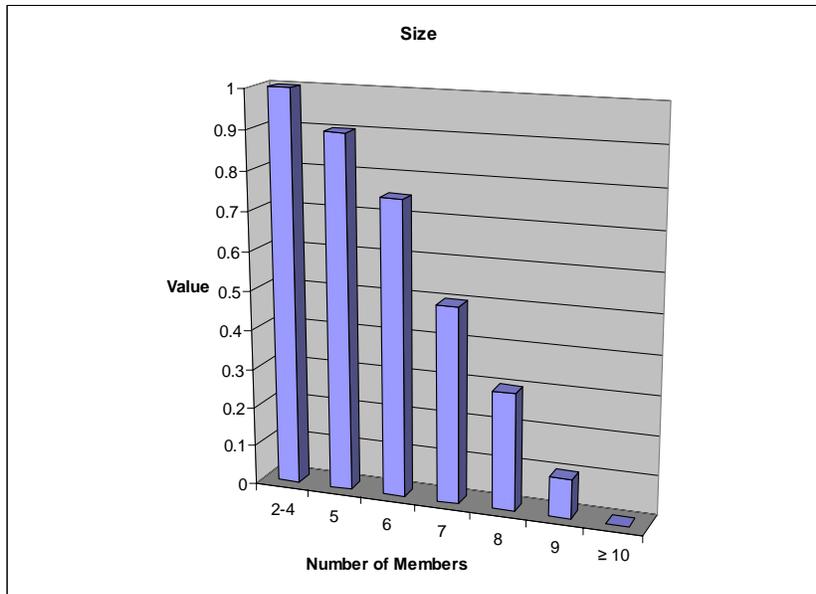
The significant factors contributing to an individual’s *Commitment to Primary Group* are shown in Figure 3.3. The types of commitment, affective, continuance, and normative, lead to objective measures that will be used to score the individual’s commitment level. The correct way to interpret the hierarchy is to read it from the bottom to the top. For instance, *Size, Duration of Membership, Isolation Status, etc.* are measuring the Affective Commitment of the individual towards their *Primary Group*.



**Figure 3.3** *Commitment to Primary Group* Sub-Hierarchy

*Commitment to Primary Group (Size)*

One of the six measures developed for scoring an individual’s affective commitment towards their primary group is the size of their primary group. The *Size* of the primary group is a proxy measure of the individual’s contacts, with the purpose of gauging the affective commitment of an individual towards their primary group based on the number of people the member typically has the most frequent interactions with. Based on the literature, it is evident a smaller group is more desirable, keeping in mind a group must consist of two or more people [Brown, 2000:3]. Therefore, the scoring gives the range of 2-4 people a score of 1. According to Subject-Matter Experts (SMEs), a small group with 10 or more is typically unproductive and receives a value of 0. Figure 3.4 the single-dimension value function developed for this measure, and Table 3.2 gives the categorical scoring for this measure. The decreasing function illustrates an individual receives more value from having frequent interactions with less people. The value score quickly decreases as more people are included in the primary group.



**Figure 3.4** SDVF for *Size*

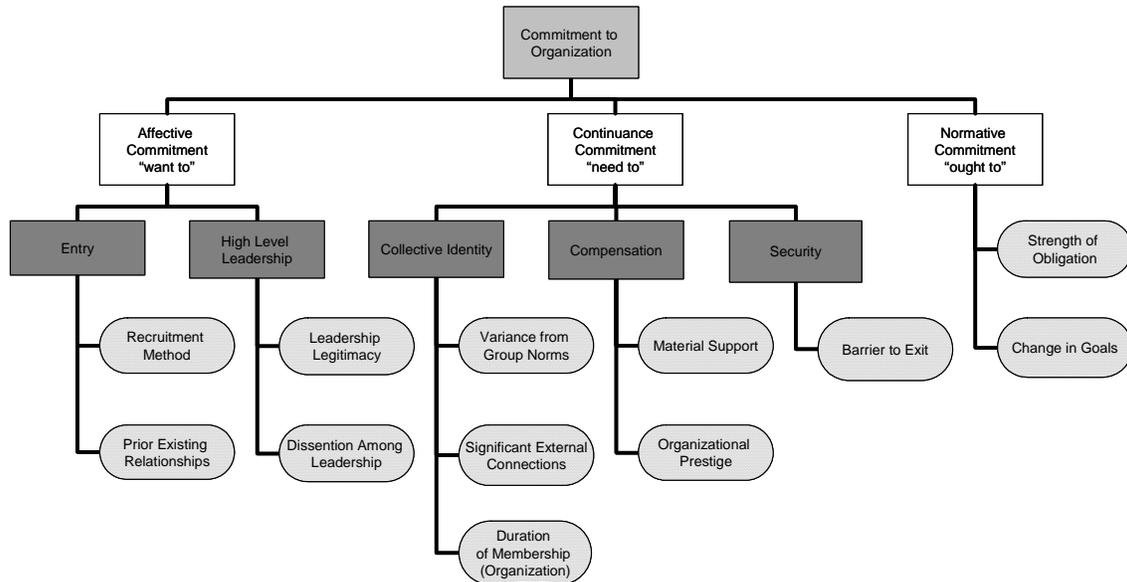
**Table 3.2** Categorical Scoring for *Size*

Number of Members	Value
> 10	0
9	0.1
8	0.3
7	0.5
6	0.75
5	0.9
2-4	1

### *Commitment to the Organization*

In addition to evaluating the individual's level of commitment to their primary group, it is also necessary to evaluate their allegiance to the organization [Piper, *et al*, 1983:103]. There are needs that can be met by the primary group, such as friendship and personal emotional support, which are best met in small, intimate groups of people. Similarly, there are other needs that are most efficiently met by an organization, which are captured in *Commitment to Organization* shown in Figure 3.5. *Commitment to Organization* is a sub-objective of individual commitment to a clandestine group that

intends to capture why a person remains in a specific organization rather than accomplishing their goals alone or joining a different group. The sub-hierarchy for Commitment to Organization is illustrated in Figure 3.5.



**Figure 3.5** *Commitment to Organization* Sub-Hierarchy

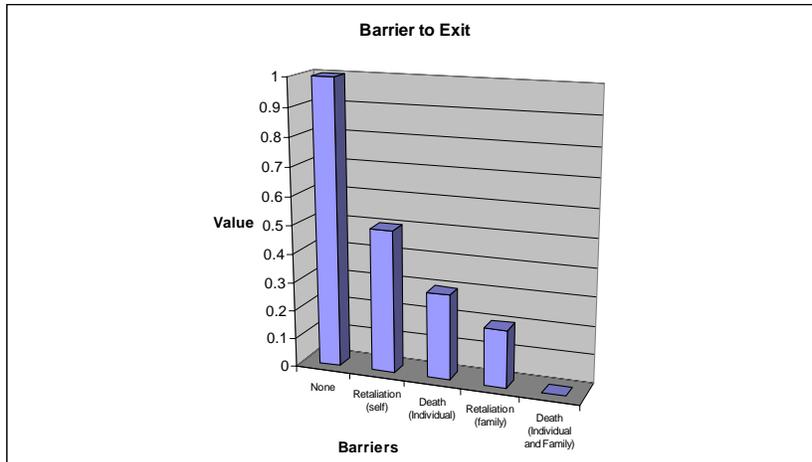
After being divided into Meyer and Allen’s (1990) three components of organizational commitment, *Commitment to Organization* is further separated into additional sub-objectives: For example, *Continuance Commitment* is described as the “need to” element of commitment because it captures the investments the individual has made in the organization and what it would cost the individuals to depart the organization [Meyer and Allen, 1991:67, 71]. This element has been split into *Collective Identity*, *Compensation*, and *Security* in order to capture the sacrifices an individual would have to make by exiting the group. In other words, these sub-objectives explain why an individual would *need to* remain a member of the organization.

*Collective Identity*, a concept adopted from Polletta and Jasper (2001), is intended to describe the extent which an individual develops and maintains their identification with the organization as a broad community. *Compensation* and *Security* is included to

explain how the basic needs, described by Maslow (1954) and explained by Alderfer (1972), of the individual are being met by the organization. These sub-objectives are critical to explaining why an individual may conclude they *need to* remain in a clandestine organization based on the costs they would incur by exiting

*Commitment to Organization (Barrier to Exit)*

*Barrier to Exit* is included as a proxy to objectively measure an individual's need for *Security*. In clandestine organization of terrorist extremists, physical security from those external to the organization is probably not a high concern to the individual because of the nature of membership. However, the penalty enforced by the organization for members who desire to exit may play a significant role in an individual's commitment level. The SDVF for Barrier to Exit is shown in Figure 3.6. The categorical scoring used in this study is given in Table 3.3. While the individual who perceives his family will be in extreme danger if he exits may stay with the group, he may be an influence target if one could provide him assurance that he and his family would be kept safe. Therefore, the scoring ranges from "none" (i.e. no barriers to exit), with a commitment score of 1, to "death for the individual and their family," with a commitment score of 0.



**Figure 3.6** SDVF for *Barrier to Exit*

**Table 3.3** Categorical Scoring for *Barrier to Exit*

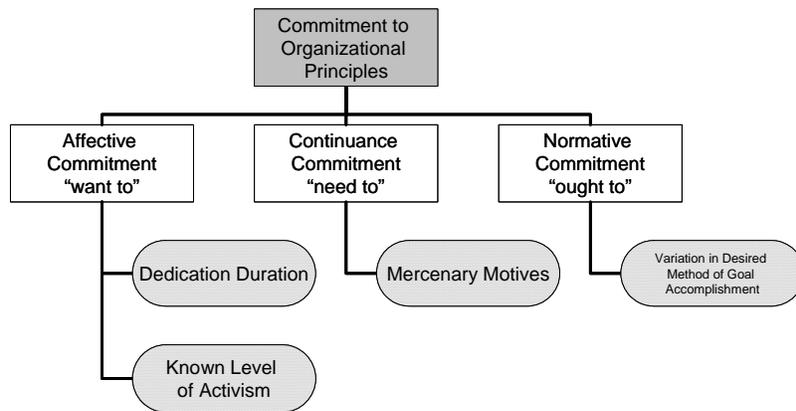
Barrier to Exit	Value
None: No exit penalty enforced by the organization	1
Retaliation (self): Physical or Mental retaliation enforced on the individual	0.5
Death (Individual): Organization kills members who attempt to exit	0.3
Retaliation (family): family members experience physical or mental retaliation as a result of the member exiting the group	0.2
Death (Individual and Family): Organization kills members and their families if members attempt to exit	0

*Commitment to the Organizational Principles*

The final bond an individual would potentially be committed to in a clandestine group is *Commitment to Organizational Principles*. The extent to which a member is committed to fulfilling the goals and vision of the organization is the third type of bond that should be explored in order to accurately gauge an individual’s commitment to the clandestine group. This sub-objective focuses on the commitment of the individual to accomplish the ultimate goal separate from their primary group or the entire organization. All humans “believe in something more important than life” because it gives our personal existence meaning and purpose [McCauley, 2004:44]. Klein (1971) expanded the Festinger, *et al* (1950) definition by simply including this component of cohesion in his

description of cohesion as “the extent to which psychological forces operate to bind people together in a common purpose” [Klein, 1971:7]. However, when individuals seek to accomplish goals as a member of a primary group or an organization, the membership could simply be a means to an end.

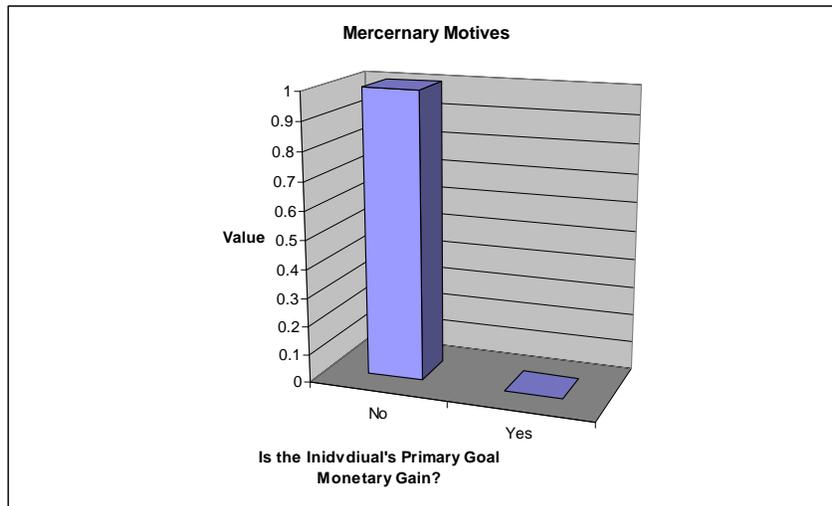
Brown (2000) stated that cohesion was not just based on interpersonal attraction between the members, but that it was also necessary to include the attraction to the goal, idea, or cause defining the organization’s purpose [Brown, 2000:47]. *Commitment to Organizational Principles* is included in this model as a separate category to capture whether the individual’s commitment to the ultimate goal of the organization, separate from their bonds to their peers and the group. In addition to being significant to gauging an individual’s commitment, estimating the commitment level of members toward the organizational principles is necessary to gain a better understanding of the potential fate of the group. The sub-hierarchy for *Commitment to Organizational Principles* is illustrated in Figure 3.7.



**Figure 3.7** *Commitment to Organization Principles* Sub-Hierarchy

Commitment to the Organizational Principles (Mercenary Motives)

*Mercenary Motives* is included as a measure to determine whether monetary gain is the primary goal of the individual's support of the organizational principles. According to SMEs, an individual supporting the purpose of the organization simply for monetary gain is not as committed to the organization and can be influenced with the prospect of receiving money from outsiders. The SDVF and categorical scoring for *Mercenary Motives* are given in Figure 3.8 and Table 3.4, respectively.



**Figure 3.8** SDVF of *Mercenary Motives*

**Table 3.4** Categorical Scoring for *Mercenary Motives*

Mercenary Motives	Value
No	1
Yes	0

### 3.3 Summary

This chapter has discussed the VFT-like approach used in this research to develop a hierarchical model for an individual's commitment to a clandestine group. The model developed is useful because having committed members leads to groups being more cohesive. For a full description of each measure, please reference Appendix C. In the next chapter, the model is applied a fictitious clandestine organization, the Perkinites.

## ***4. Gauging Individual Commitment—An Illustration***

*We must, indeed, all hang together or, most assuredly, we shall all hang separately.*<sup>10</sup>

### **4.1 Introduction**

The main goal of this thesis is to provide an initial hierarchy that identifies and gauges the significant factors contributing to an individual's commitment to a clandestine group. The purpose of this chapter is to illustrate the application of the individual commitment hierarchy on a notional dataset. The hierarchy presented in Chapter 3 is used in this chapter to evaluate a notional narco-terrorist organized crime family. First, details surrounding “intelligence” gathered about the fictional group will be given. After reviewing the data, the thresholds of the measures were adjusted to fit the organization. Next, the measures will be weighted locally and globally based on the characteristics of the group. Then, the initial analysis of the members of the group will be explained followed by a demonstration of sensitivity analysis conducted in this research.

### **4.2 Details of the Study**

#### *4.2.1 The Perkinites*

The fictitious organization evaluated in this thesis is *The Perkinites*. This organization is presently known primarily as a narco-terrorist association. Narco-terrorism is defined by the Department of Defense as “terrorism used to further the aims of drug traffickers” [Department of Defense Dictionary, 2001:359]. However, this group has only recently evolved from a terrorist group with a purpose vastly different from making money. Less than two decades ago, this group became a feared terrorist organization that fought for equal rights among immigrants entering the territory where

---

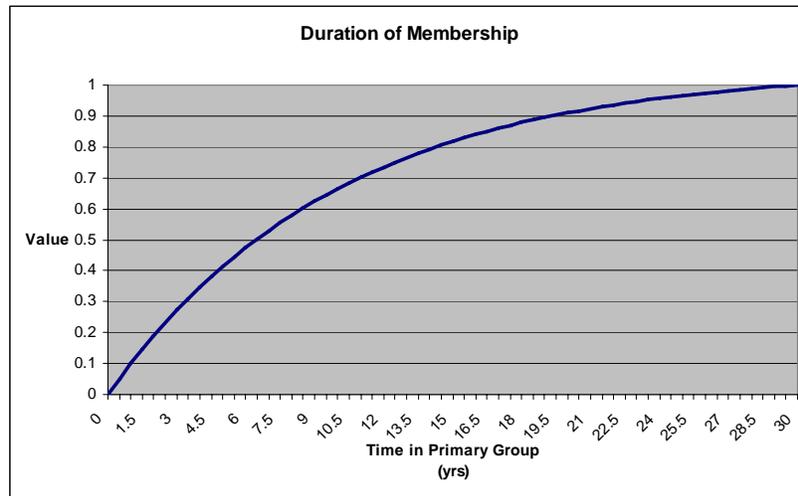
<sup>10</sup> Benjamin Franklin Quote, “BrainyQuote: Benjamin Franklin Quotes,” 2006.

they resided. Drug trafficking became of interest because of the accessibility of the ports and the increased monetary support to fund terrorist operations. Therefore, it would be more applicable to use Hoffman's (1998) definition of narco-terrorism to describe this organization: "the use of drug trafficking to advance the objectives of [...] terrorist organizations" [Hoffman, 1998:27]. Prior to drug involvement, the Perkinites primarily earned their money by operating local small business, which all earned significantly less money than drug trafficking. The individuals to be analyzed via the model developed in this research for gauging individual commitment to a clandestine organization includes twenty members of the group. They have been selected based on the availability of "intelligence" data.

#### *4.2.2 Analysis Preparation*

Once the characteristics of the organization were learned, the measures were reviewed to ensure the thresholds matched the specifics of the organization. Most thresholds did not require adjustment. An example of a measure requiring an adjustment of the upper bound is *Duration of Membership* in the *Primary Group*. The general case of this measure placed the upper bound at 5 years, which would receive a score of 1. This is not a useful bound for the Perkinites because of the number of "older" active members. In fact, the average membership is approximately 18 years, with several members having over thirty years of membership. Subject-matter experts (SMEs) recommended 30 years of membership to be the upper bound of *Duration of Membership*. Therefore, those members with at least 30 years of membership in their *Primary Group* would receive a score of 1. This illustrates how measures can be tailored

for specific groups. The adjusted single-dimension value function (SDVF) is shown in Figure 4.1.



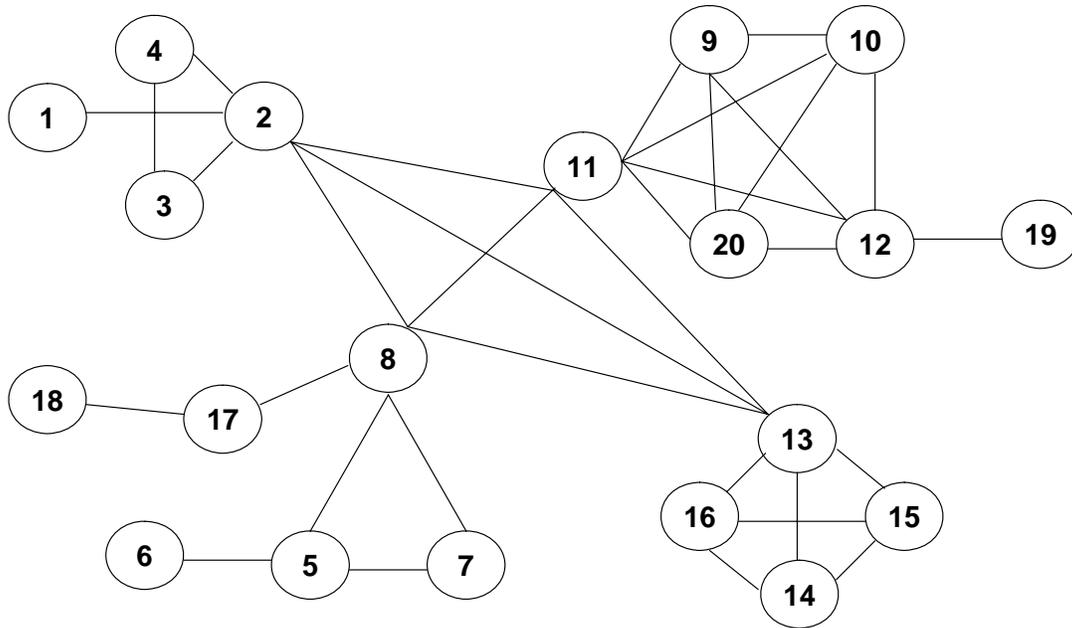
**Figure 4.1** Adjusted SDVF for *Duration of Membership in Primary Group*

The next step was to evaluate the twenty members of the Perkinites. The evaluation of the members is shown in Appendix E. In a real world intelligence application, this task would have been completed by SMEs who have knowledge of the clandestine group, the culture in which it operates, access to available data on the characteristics of the individuals, and some knowledge of the inner-workings of the entire organization. Before value scores can be assigned to each member, the measures must be weighted according to the attributes of the organization. When possible, it is preferred that the scorers do not have knowledge of the weights of the measures prior to scoring individuals in order to reduce potential bias. This will be problematic, however, in my intelligence settings.

#### 4.2.3 Weighting Measures

Within the twenty group members in the data set, there are four primary groups represented. The network representation of this organization is illustrated in Figure 4.2.

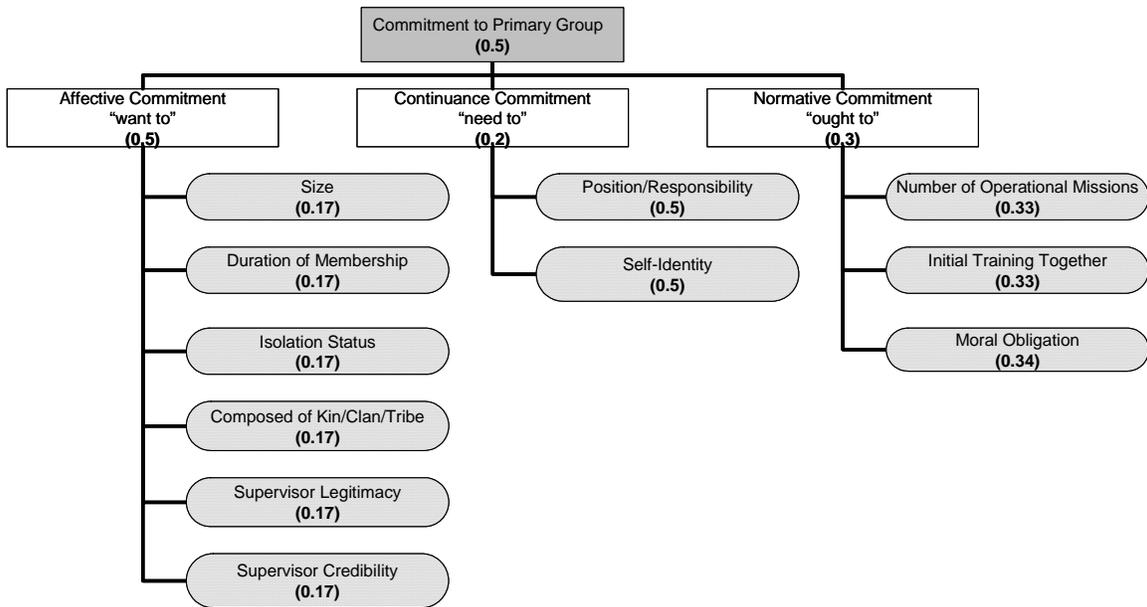
The primary groups are shown by the nodes (members) clustered together. For instance, Members 1, 2, 3, and 4 make up a primary group.



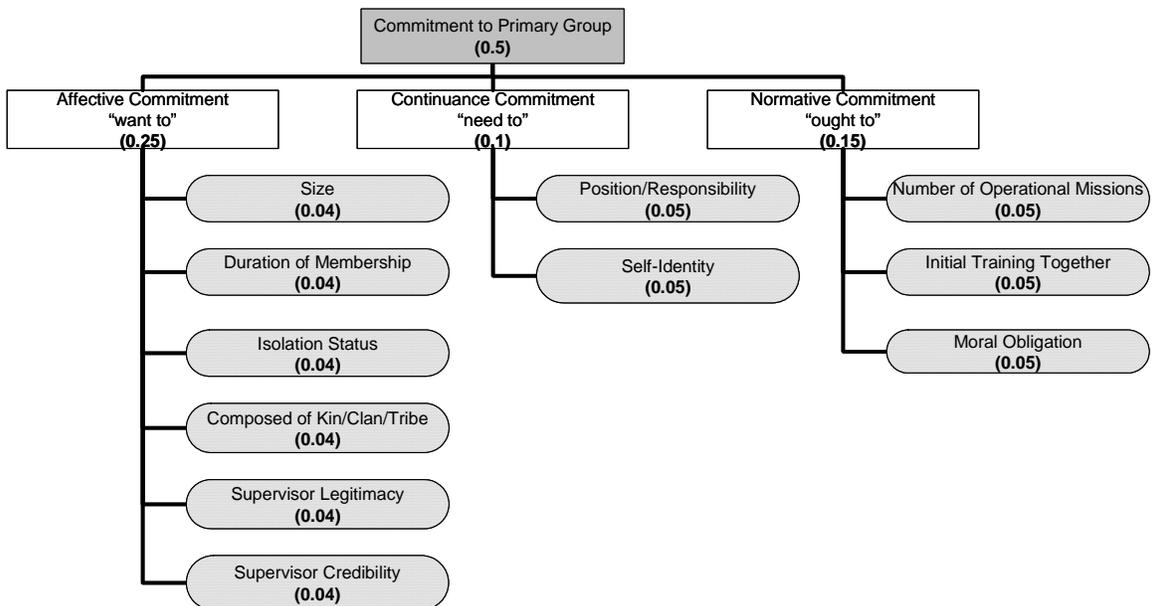
**Figure 4.2** Network Representation of the Perkinite Members

In this organization, the *Primary Group* is typically comprised of the immediate family. These are the people with whom the individual has the most frequent interactions with, completes most of their day-to-day tasks with, and the key factor holding the individual to the entire organization. Therefore, *Commitment to Primary Group* has been assigned a higher weight than the other two bonds. Similarly, of the twenty-seven total measures, the measures in the *Commitment to Primary Group* sub-hierarchy are weighted more heavily than the remaining measures in the model. Following the *Primary Group*, the *Affective Commitment* is the most significant type of commitment to an individual building commitment towards their primary group because of the family ties to the group. The measures in the sub-hierarchy for the Perkinites are evenly weighted following their respective commitment type: affective, continuance, or normative. The local and global

weights for the *Primary Group* sub-hierarchy are given in Figure 4.3 and Figure 4.4, respectively.



**Figure 4.3** Local Weight for *Commitment to Primary Group* sub-hierarchy



**Figure 4.4** Global Weight for *Commitment to Primary Group* sub-hierarchy

An individual's *Commitment to Organization* is weighted lower than *Commitment to Primary Group* but higher than *Commitment to Organizational Principles* for a couple of reasons. First, the Perkins family has maintained strong family bonds among immediate family, i.e. the *Primary Group*, and extended family, i.e. *Organization*, since their initial arrival to their present territory over a century ago. While the entire organization can typically meet needs that a primary group cannot, on average individuals in this family have demonstrated behavior that suggests they are not as committed to members external to their primary group or immediate family. In fact, rather than continue to use the family business as their only source of income, a few members have elected to only support the family business part-time and have sought employment external to the family. The strength of the bonds of the immediate family compared to the strength of the bonds with extended family (excluding the primary group) is reflected in the difference in the weights.

The types of commitment are weighted to reveal the importance of *Continuance Commitment* to the affinity to the entire organization. *Continuance Commitment* is weighted more than the other two types because members of the group have exhibited that their investments and opportunity costs tend to lead to a higher commitment level towards the organization, independent of their connection to their immediately family. The measures in the *Commitment to Organization* sub-hierarchy are equally weighted within their branch. The local and global weights for the *Commitment to Organization* sub-hierarchy are given in Figure 4.5 and Figure 4.6, respectively. Please note *Entry*, *High-Level Leadership*, *Collective Identity*, *Compensation*, and *Security* are also sub-objectives and have been equally weighted below their respective branch.

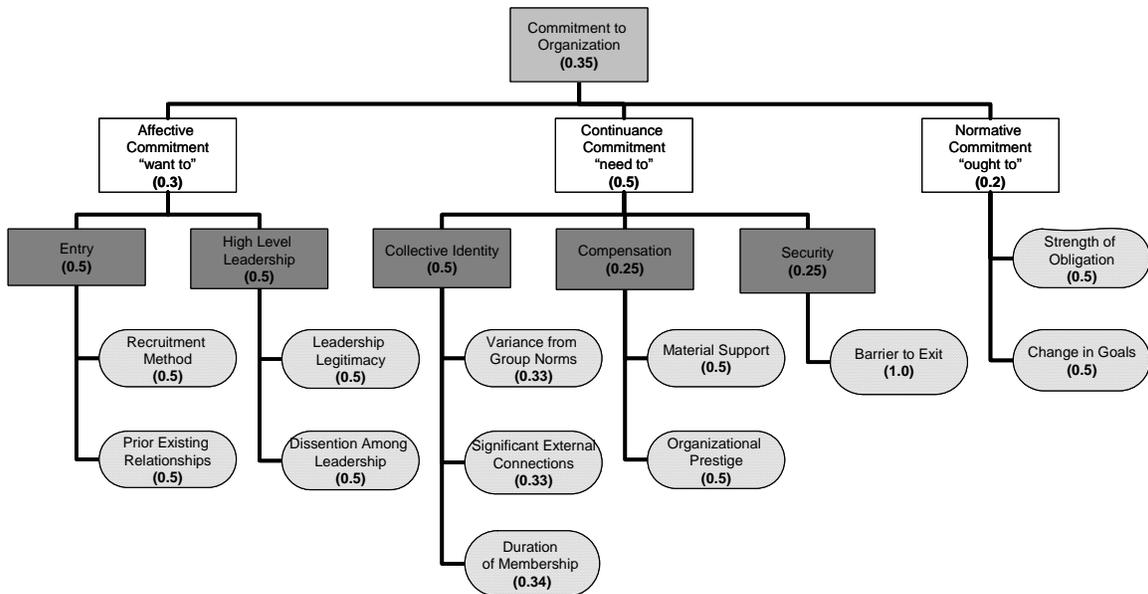


Figure 4.5 Local Weight for *Commitment to Organization* sub-hierarchy

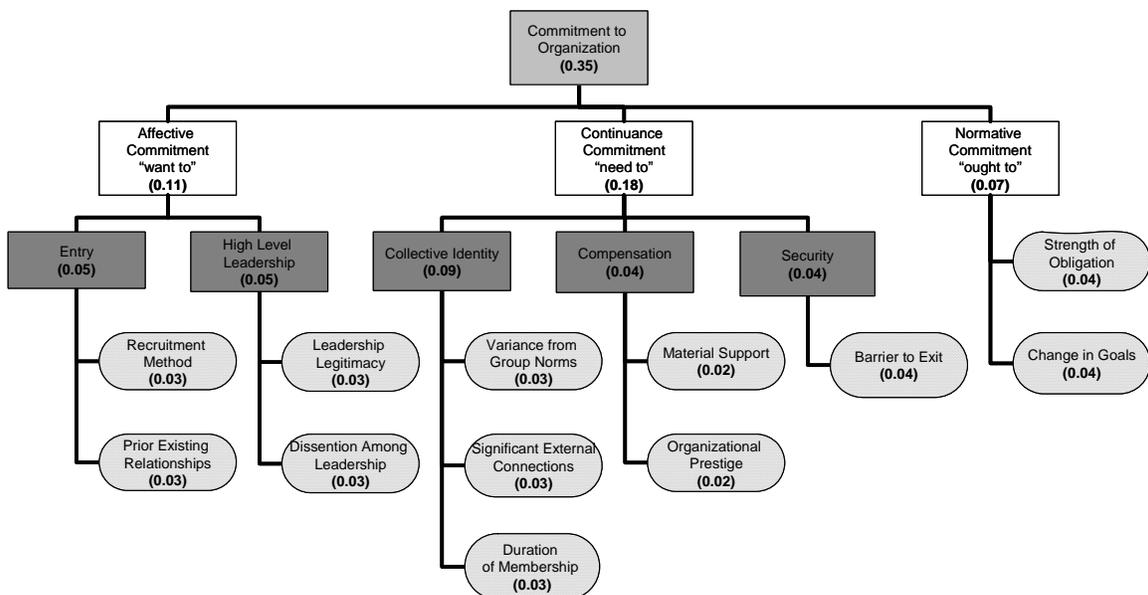
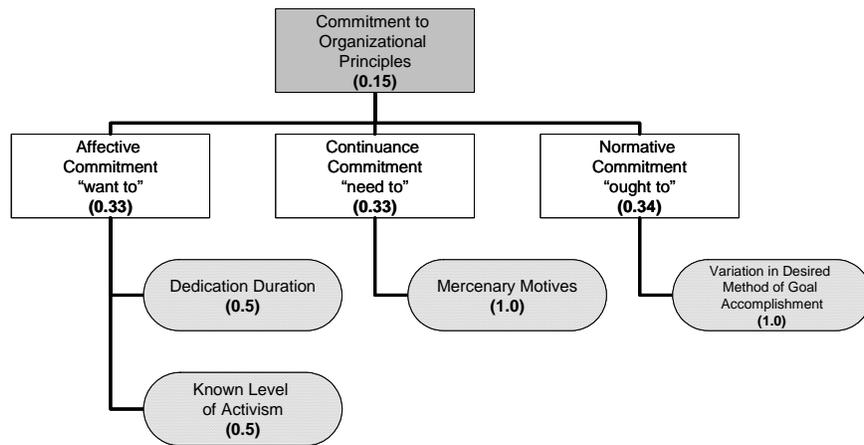


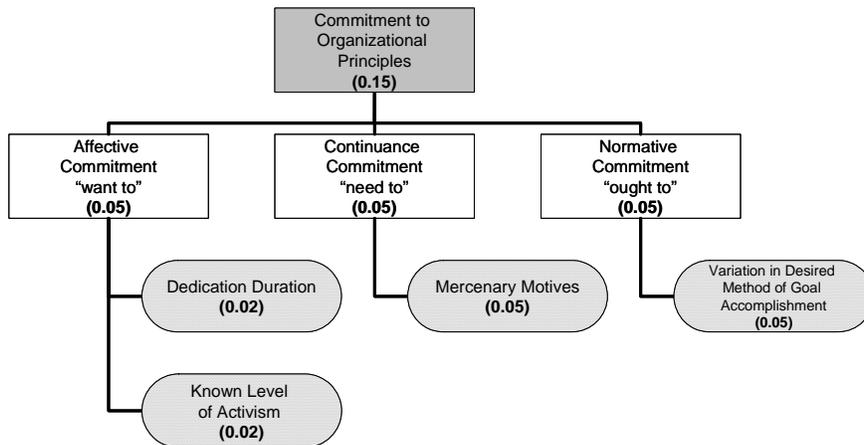
Figure 4.6 Global Weight for *Commitment to Organization* sub-hierarchy

In this application of the Individual Commitment hierarchy, the *Commitment to Organizational Principles* is assigned the smallest weight of the three sub-hierarchies. This is due to the nature of the organization. The smaller weight should not lead one to perceive these measures as insignificant to an individual's commitment level. Quite the

contrary is true. It just so happens that in general, family, immediate and extended, has more of an impact on the commitment level of an individual Perkinite. In addition, although *Commitment to Organizational Principles* makes up a small percentage of an individual's overall commitment to a clandestine group, the global weights for the measures show it is still a significant area of evaluation for the Perkinities. The local and global weights are given in Figures 4.7 and 4.8, respectively.



**Figure 4.7** Local Weight for *Commitment to Organizational Principles* sub-hierarchy



**Figure 4.8** Global Weight for *Commitment to Organizational Principles* sub-hierarchy

The entire hierarchy with local and global weights is shown in Figures 4.9 and 4.10

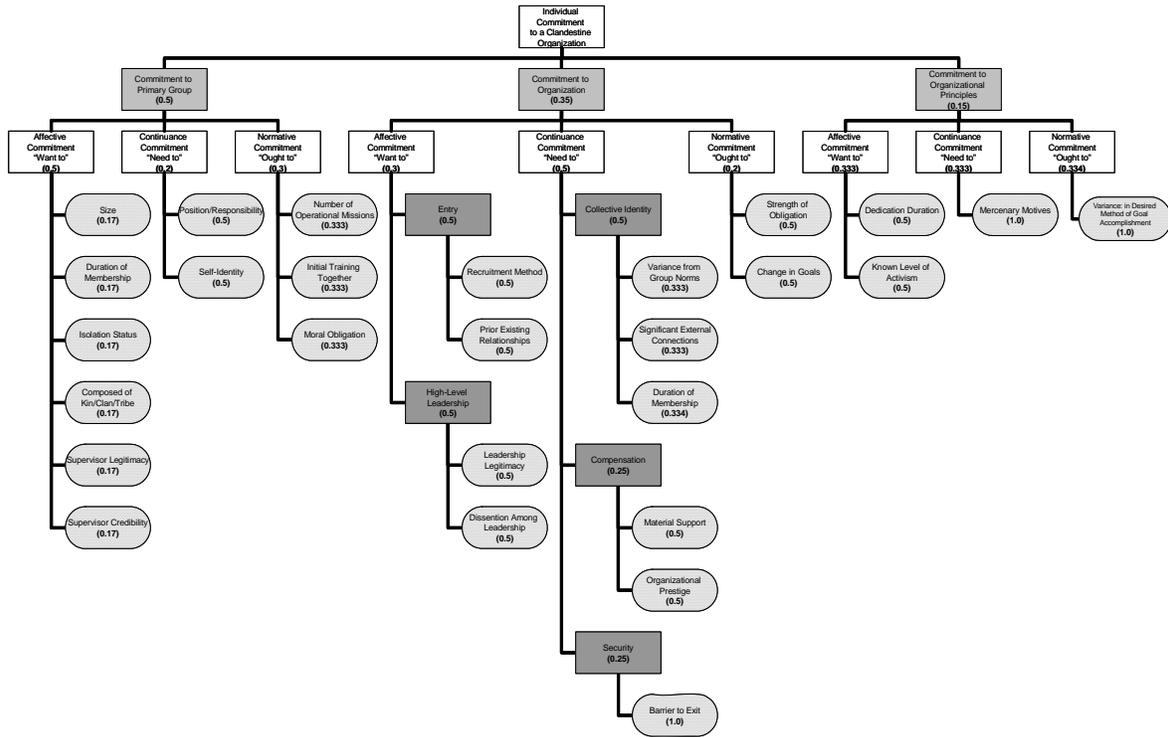


Figure 4.9 Individual Commitment Hierarchy with Local Weights

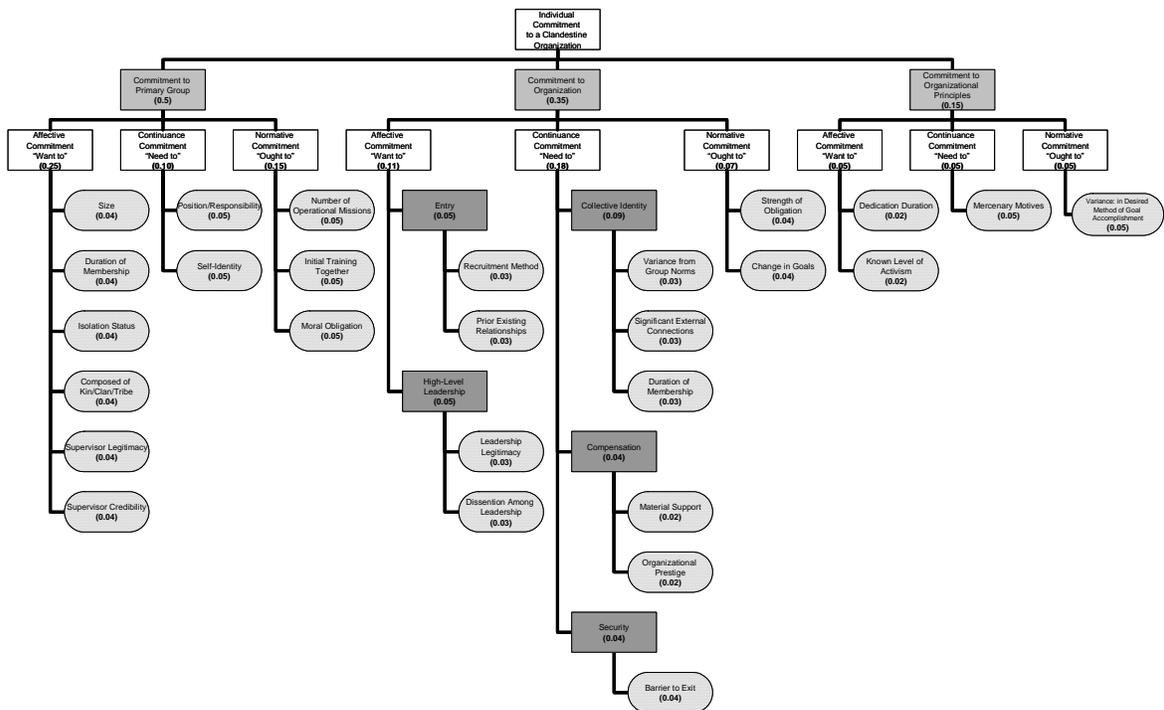


Figure 4.10 Individual Commitment Hierarchy with Global Weights

#### 4.2.4 Analysis and Targeting

After the twenty members were evaluated and the measures assigned weights, the members were scored and ranked according to their commitment level. The normalized scores range from 0 to 1, with 0 representing the least committed individual and 1 representing the most committed individual. Members 18 and 7 are ranked the lowest and members 11 and 13 have the highest commitment levels within the group of Perkinites investigated. The results of the initial analysis are shown in Figure 4.11 and Table 4.1. According to the SMEs, there were no surprises in the ranking results, implying the model accurately gauged the commitment levels of the Perkinites. It is important to note that no other inferences outside of their commitment level should be formed about the individuals based solely on their commitment level provided by the model.

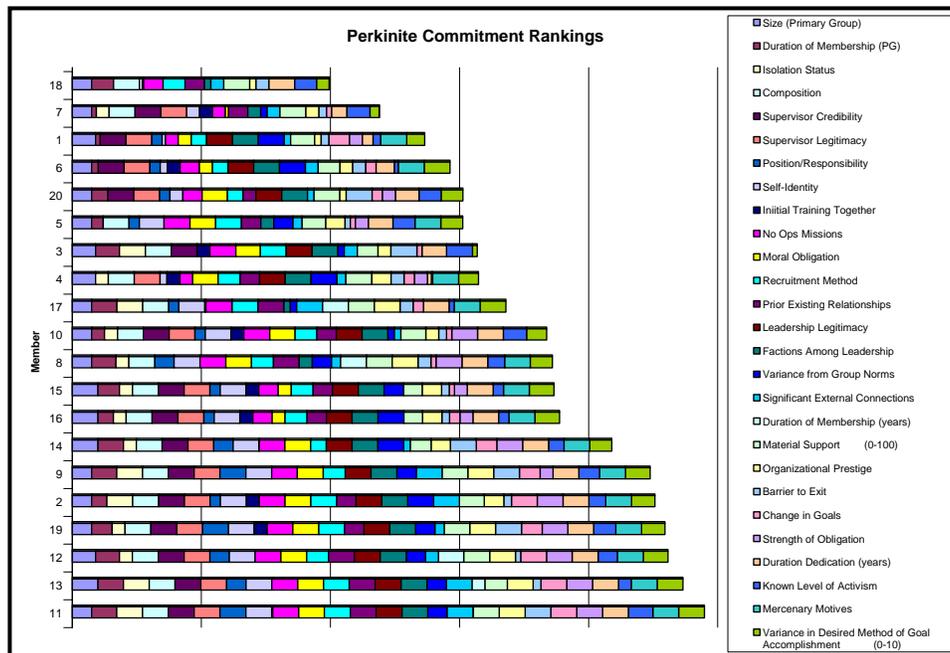


Figure 4.11 Perkinite Commitment Rankings

**Table 4.1** Perkinite Commitment Rankings

	<b>Member ID</b>	<b>Commitment Score</b>
<i>Least Committed</i>	18	0.34
	7	0.43
	1	0.50
	6	0.55
	20	0.55
	5	0.56
	3	0.56
	4	0.57
	17	0.61
	10	0.67
	8	0.68
	15	0.70
	16	0.70
	14	0.79
	9	0.83
	2	0.84
	19	0.84
12	0.86	
13	0.87	
<i>Most Committed</i>	11	0.90

In addition to the initial commitment rankings, it may be useful to know how individuals scored in each of the three types of bonds: *Commitment to Primary Group*, *Commitment to Organization*, and *Commitment to Organizational Principles*. These partial scores indicate the level of commitment to each bond, which directly impacts the overall commitment score. In addition, the separate charts allow the analyst to identify which measures are significant to the individual's commitment to the organization. These rankings are given in Table 4.2 and illustrated in Figures 4.12, 4.13, and 4.14.

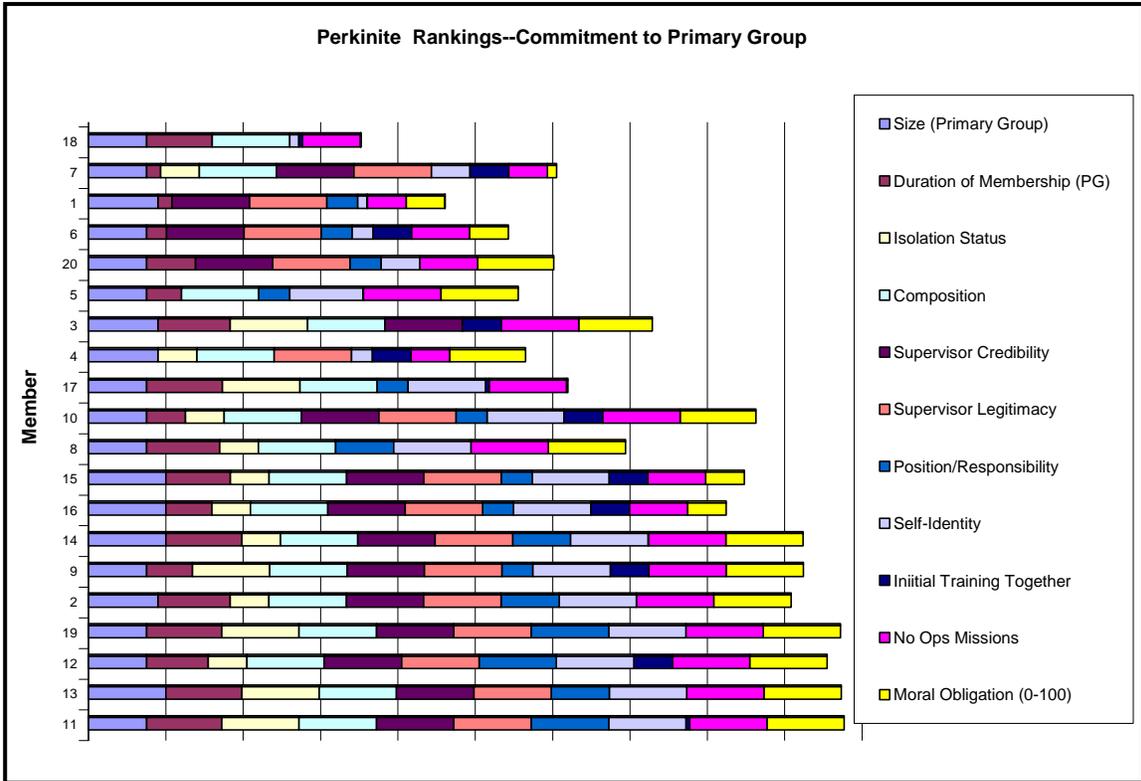
It can be seen that while the two most committed individuals scored the highest in each category, coming second only to each other, this is not necessarily the case for the least committed individuals. For example, Member 7 did not receive an exceptionally low score for their *Commitment to Primary Group*; however their other scores were fairly

low which pulled down their entire score. Figures 4.9, 4.10, and 4.11 clearly show that members with lower commitment consistently scored low on *Duration of Membership* in their *Primary Group*, *Moral Obligation*, *Isolation Status*, *Variation from Group Norms*, and their *Variation in Desired Method of Goal Accomplishment*. However, a low score is not the only criteria for being selected as a target for influence operations.

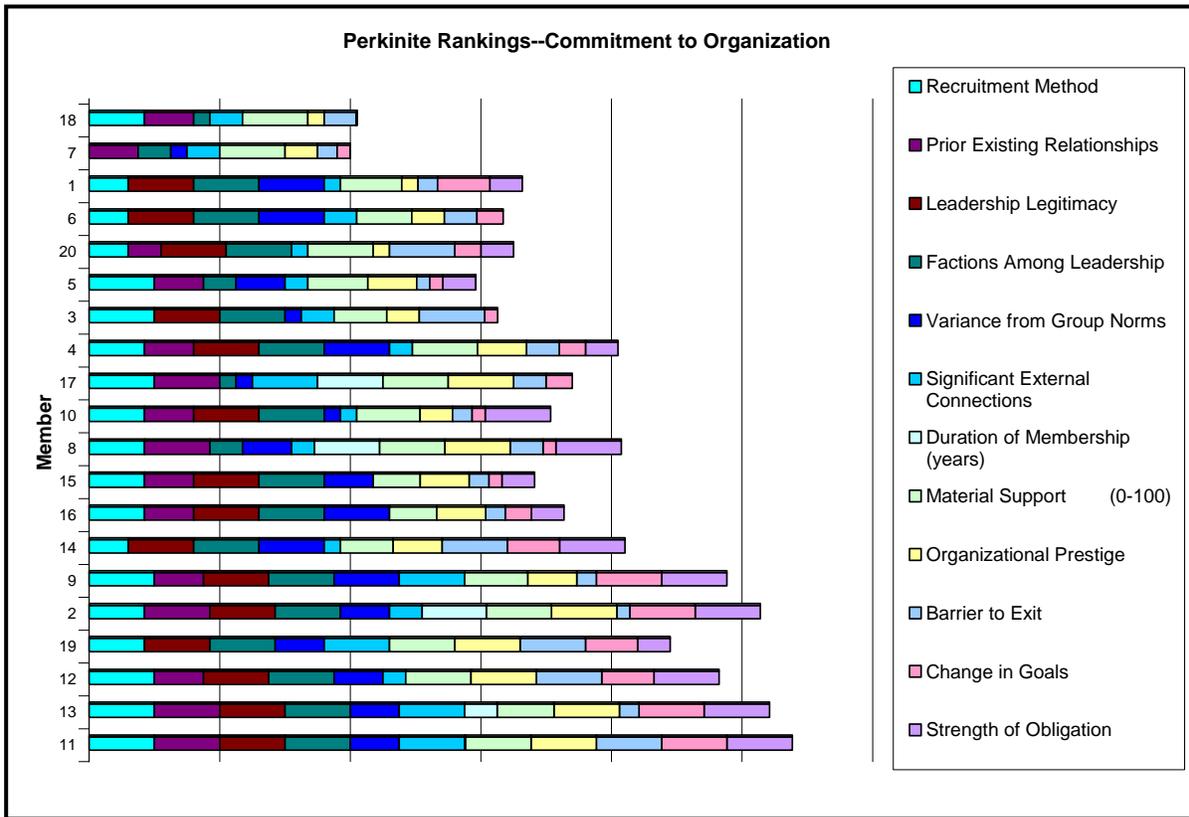
In the 2003 film, *Runaway Jury* based on John Grisham's novel, Gene Hackman's character states that "anyone can be gotten to," given that one knows how to influence them. In a real-world example, the goal is to influence the commitment level of as many individuals as possible. While ranking the individuals based on commitment allows easier targets to be identified, it does not exclude those who did not have low scores from being influence targets. Following the table and figures illustrating the commitment level of each member, possible targets are recommended using this analysis.

**Table 4.2** Perkinite Commitment Rankings including scores of the Three Bonds

<i>Max Score =</i>	<i>1.00</i>	<i>0.50</i>		<i>0.35</i>		<i>0.15</i>	
<b>Member ID</b>	<b>Commitment Score</b>	<b>Primary Group</b>	<b>Rank</b>	<b>Organization</b>	<b>Rank</b>	<b>Organizational Principles</b>	<b>Rank</b>
18	0.34	0.15	20	0.11	19	0.07	18
7	0.43	0.27	14	0.11	19	0.05	20
1	0.50	0.20	19	0.19	13	0.10	14
6	0.55	0.25	17	0.18	16	0.12	13
20	0.55	0.27	14	0.19	13	0.09	15
5	0.56	0.26	16	0.16	18	0.14	2
3	0.56	0.32	11	0.18	16	0.06	19
4	0.57	0.25	17	0.23	8	0.09	15
17	0.61	0.28	13	0.20	10	0.13	8
10	0.67	0.39	8	0.20	10	0.09	15
8	0.68	0.32	11	0.23	8	0.13	8
15	0.70	0.38	9	0.19	13	0.13	8
16	0.70	0.37	10	0.20	10	0.13	8
14	0.79	0.42	5	0.25	7	0.13	8
9	0.83	0.42	5	0.28	4	0.14	2
2	0.84	0.41	7	0.29	2	0.14	2
19	0.84	0.44	1	0.26	6	0.14	2
12	0.86	0.44	1	0.28	4	0.14	2
13	0.87	0.44	1	0.29	2	0.14	2
11	0.90	0.44	1	0.31	1	0.15	1



**Figure 4.12** Perkinite *Commitment to Primary Group* Rankings



**Figure 4.13** Perkinite *Commitment to Organization* Rankings

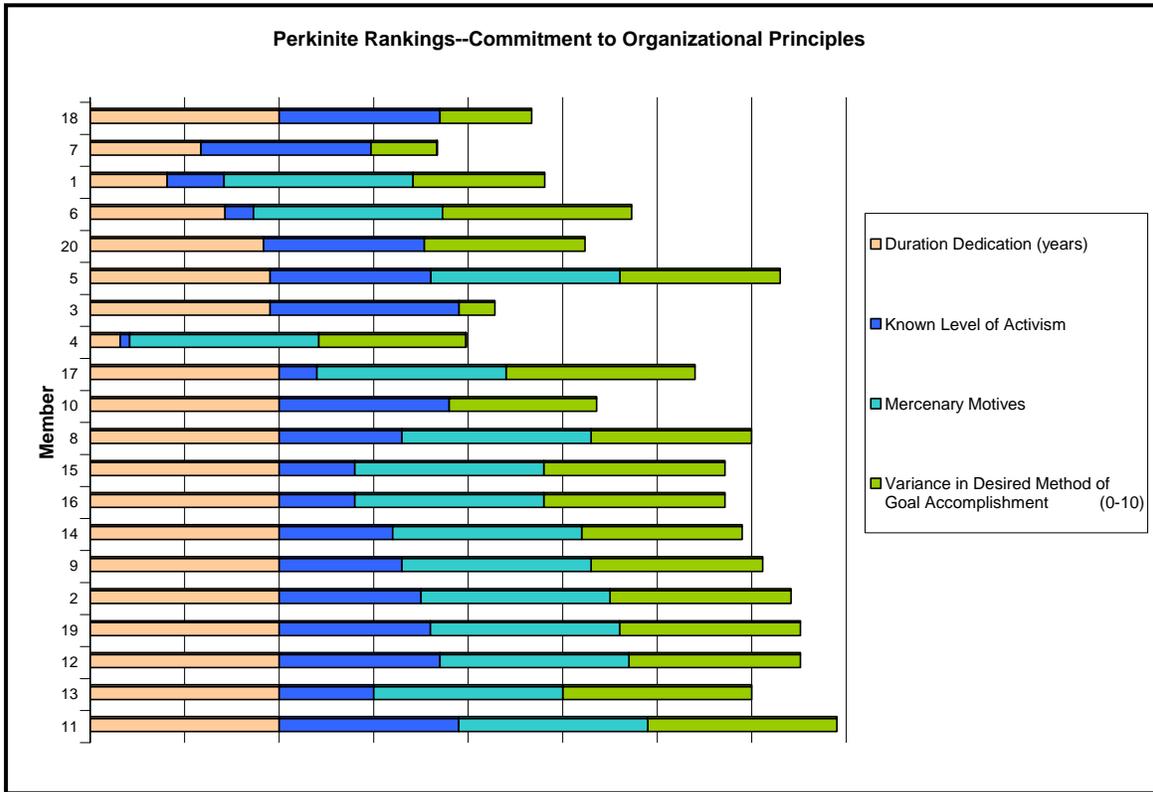


Figure 4.14 Perkinite Commitment to Organizational Principles Rankings

At first glance of the results, the first members to attempt to influence would be 18 and 7. They have the two lowest scores for most of the measures and have the lowest commitment level according to the model. Their accessibility could be used to learn more about the group. However, these two individuals may not be the best target options for several reasons. First, they both scored extremely low in *Commitment to Organizational Principles*, implying their credibility among other group members is probably not very strong. In addition, both members also received low marks in their *Commitment to Primary Group* and *Commitment to Organization*. This is an indication that their loyalty does not lie with those closest to them or the entire organization. While these individuals are accessible, according to intelligence data, a significant amount of effort should not be spent on further degrading their commitment level or attempting to use them to influence the other members. Because they lack credibility within and

loyalty to the organization, it unlikely that the organization will be noticeably impacted by only targeting Members 18 and 7 for influence operations.

One potential target for influence operations is Member 5. This individual is ranked 14<sup>th</sup> for overall commitment (6<sup>th</sup> from the least committed individual), with comparable *Commitment to Primary Group* and *Commitment to Organization* scores. However, their *Commitment to Organizational Principles* score is very high. One way to possibly conduct influence operations on this member would be to attack their credibility with the other members, in order to decrease their commitment to the goals of the organization.

Other potential targets include Members 14, 15, and 16. These individuals appear to be reasonably committed to the entire organization. All received high scores for *Commitment to Primary Group* and *Commitment to Organizational Principles*. These three members belong to the same *Primary Group* and all score low on *Commitment to the Organization*. In order to cognitively influence these members, one could convince them that the organization is treated their *Primary Group* poorly compared to the others.

The five members with the highest level of commitment are probably going to be the most difficult to externally influence. Their scores are high across all three types of bonds and, overall, they are less accessible than any other members. The best way to try to reach these people would be to have another member who is ranked lower attempt to influence them.

These possible courses of actions are included in the study to show the types of inferences that can be made by using results of this model. In a real-world scenario, recommendations for courses of actions would be conducted at a much higher level of

classification after SMEs have thoroughly reviewed model output and conducted sensitivity analysis.

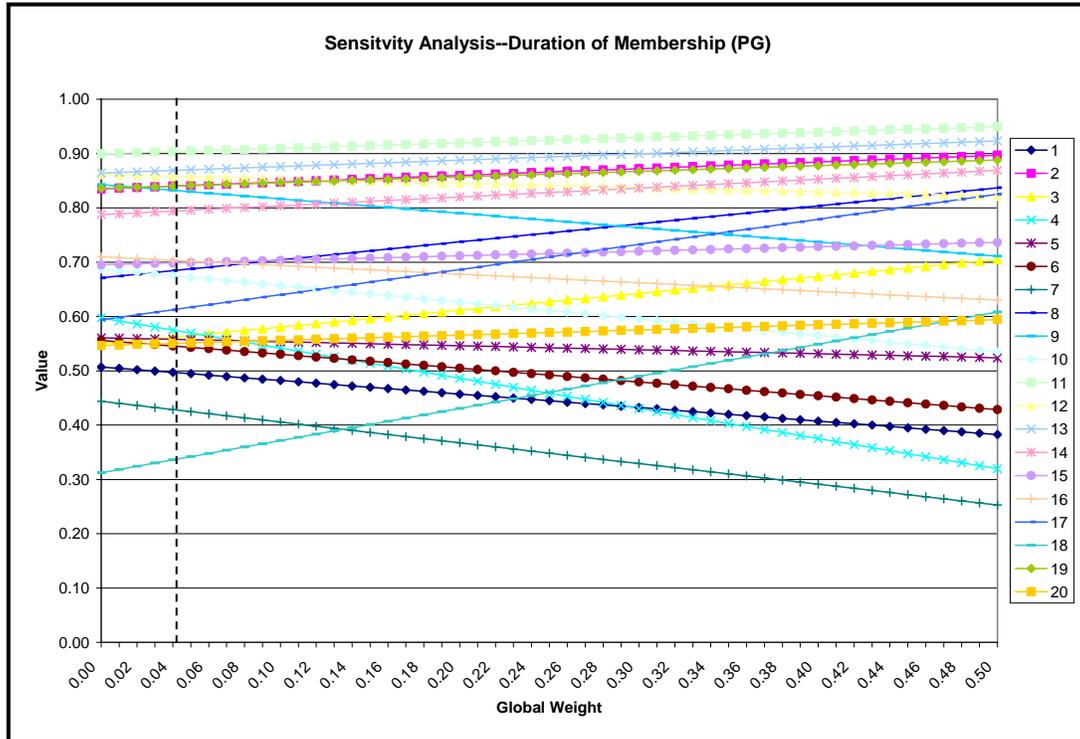
### **4.3 Sensitivity Analysis**

After the alternatives have been scored, the analysis was taken one step further. Sensitivity Analysis (SA) was conducted on the weights of the measures to determine how the rankings of the members would change as the weights were altered. In this study, the weights for the measures were only tested for their sensitivity within the sub-hierarchies. For instance, *Duration of Membership* in the Primary Group accounts for 4% of the individual's overall level of commitment. The sensitivity analysis of this measure would vary the weight from 0%-50% because that is the maximum weight of the sub-hierarchy it falls under.

#### *4.3.1 Commitment to Primary Group--Duration of Membership*

Several Perkinites with an overall low commitment score also had a low Duration of membership score for the Primary Group. Figure 4.12 illustrates how the rankings would change if the weight of the measure, *Duration of Membership*, were modified. The dashed, vertical line represents the current value of the weight. Once the weight is increased to 14%, the two individuals with the lowest commitment levels, Members 18 and 7, switch places but remain at the bottom of the rankings. If the weight were to be increased to 26%, Member 18 significantly moves up in the commitment rankings while Member 7 remains at the bottom. From 26%-50%, the three least committed individuals are Members 7, 4, and 1. This result makes sense because these three members have not been members of the organization as long as the majority of the members. If their *Commitment to Primary Group* were solely based on the length of their membership,

intuitively, they would receive lower scores than the other members. Please note the members with high levels of commitment appear to be insensitive to the change in weight of the *Duration of Membership*.



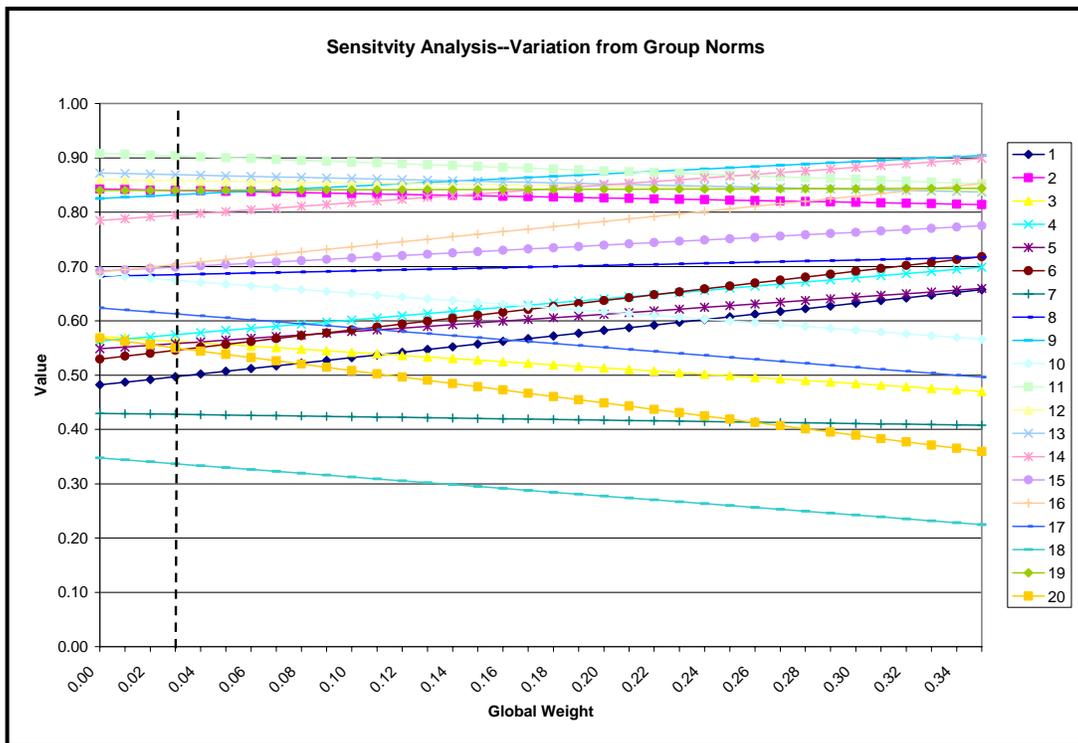
**Figure 4.15** Sensitivity Analysis—*Duration of Membership* in Primary Group

#### 4.3.2 Commitment to Organization—Variation from Group Norms

Regardless of their commitment level score, several members received a low mark for their *Variation from Group Norms*. Many of the current leaders demonstrated minor infractions during their younger years. However, there is evidence that if the situation warranted such behavior, then these individuals would not object. It is clear that those in authority of this organization did not attain this position by being risk adverse, even if the risks went against the norms of the organization.

The SA for this measure is illustrated in Figure 4.13. The dashed, vertical line represents the current value of the measure, *Variation from Group Norms*. The SA for

this measure evaluates the effects of its modification from 0%-35%. As *Variation from Group Norms* is modified, there is not much of an effect on the two least committed members, 18 and 7. However, the increase in weight has a significant effect on Member 20. A slight increase in the weight of *Variation from Group Norms* to 6% causes Member 20 to drop to the three least committed members. As the weight continues to increase beyond 26%, the Member 20 descends into the bottom two. This is significant because this indiscretion could possibly be used to blackmail Member 20 as a means of Influence Operations.

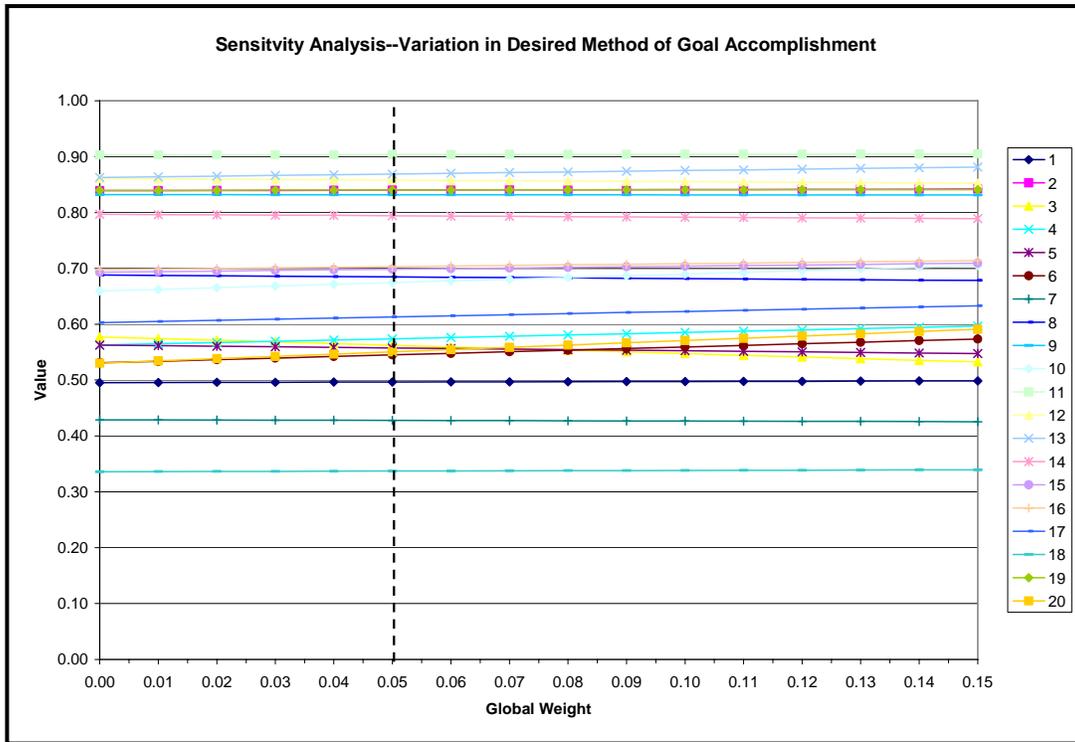


**Figure 4.16** Sensitivity Analysis—*Variation from Group Norms* of the Organization

#### 4.3.3 Commitment to Organizational Principles—*Variation in Desired Method of Goal Accomplishment*

Of the members with low commitment level rankings, many also had a low score for *Variation in Desired Method of Goal Accomplishment* under *Commitment to*

*Organizational Principles.* The SA illustration for this measure is shown in Figure 4.17. The dashed, vertical line represents the current weight if 5%. There are no significant changes in the Perkinite commitment level ranking, which indicates this measure is insensitive to global weights between 0% and 15%.



**Figure 4.17** Sensitivity Analysis—Variation in Desired method of Goal Accomplishment

#### 4.4 Insights

While the example presented in this chapter is notional, it provided insight into the process of gauging commitment. The two most important elements necessary for this analysis are subject-matter experts and intelligence data. It is unlikely that two organizations will be exactly alike. Measures must have flexibility in the specific definition as well as the thresholds based on the characteristics of the organization. Subject-matter experts are necessary to accurately define the measures in order to capture the attributes of the organization being studied. In addition, while intelligence is not

going to be perfect, it is necessary to give a semi-accurate portrait of the organization. This model is useless without intelligence gathered on our adversaries. Examples of intelligence data include, but are not limited to, financial records, phone records, rituals, societal norms, etc. Again, SMEs are valuable because people are needed with a solid background on the organization and the ability to make logical inferences in the absence of behavioral data.

#### **4.5 Summary**

This chapter presented an example of the Individual Commitment hierarchy on a notional clandestine organization in order to gain insight into the model. Chapter 5 summarizes this research by discussing the objectives of the study and providing future recommendations.

## ***5. Conclusions and Recommendations***

*The road to enlightenment is narrow and as difficult to walk as the razor's edge.<sup>11</sup>*

### **5.1 Overview of the Model**

This thesis offers an approach at modeling an individual's commitment to a clandestine organization. Decision Analysis principles, specifically a Value-Focused Thinking-like approach, was the methodology selected because it allows the values to be identified in a traceable, logical process. Rather than soliciting the values of a single decision maker, the values of individual commitment identified in this research are based on a literature review in the areas of group cohesion, organization commitment, and the nature of clandestine organizations, in particular terrorist networks. The VFT-like model developed for individual commitment should be viewed as a starting point for objective analysis of individual commitment. It combines the key concepts of organizational commitment and group cohesion applicable to observing, measuring, and scoring an individual's commitment to a clandestine organization.

### **5.2 Objectives of this Study**

The ultimate goal of this line of research was to develop a method to measure the cohesion of clandestine groups in order to aid in identifying vulnerabilities of the organization. The literature however highlighted two key points. First, cohesion is a group phenomenon widely observed by trends throughout the group's existence (i.e. higher levels of performance) or the absence of some occurrence (i.e. members not leaving the group). This method presents a problem for a clandestine group if there was no way of detecting fissures in the group when the causes of the trends and absence of

---

<sup>11</sup> Upanishads Quote from <http://www.shantimayi.com/ch1/realization2.html>

occurrences are unknown. Second, the literature failed to report a distinct methodology to measure cohesion that does not involve questioning and observing the individual members. This led to several conflicting attempts at measuring group cohesion based on the aggregate perspective of members of the group.

To begin to address these weaknesses, the focus of this study evolved to measuring and identifying vulnerabilities within the *commitment* of individual members of a clandestine group as a means to determining potential fissures in the organization's cohesion. Locating the weaknesses of an individual's commitment increases the likelihood of success in the cognitive battlespace as well as in the physical realm. Following the research of Festinger, *et al* (1950), individual commitment was divided into three main areas where a group member's loyalty will typically exist: their primary group, their organization, and the organizational principles. Based on Meyer and Allen's (1990) model, the three bonds were further separated into three elements of commitment in order to develop objective measures: affective, normative, and continuance.

### **5.3 Recommendations for Further Research**

Since this research presents a new approach to combine the subjective behavioral concepts of commitment and cohesion with objective methods of decision analysis, there are several aspects of the research available for improvements. First, the model should be verified and validated with behavioral analysts who specialize in different areas of the world to ensure this model is broad enough to be used across numerous cultures, while still able to accurately measure the commitment of individuals in different groups. Changes to the measures, including adjusting the specific phrasing, location in the model,

and even additions and removals, should be considered in order to ensure the model will apply to different types of clandestine organizations and their respective cultures.

Second, the hierarchy should be applied to members of real-world clandestine organizations, past and present. It is useful to score the individual commitment of members of past clandestine groups because the data may be readily available and the outcome of the group members is known. This will also give behavioral analysts an opportunity to find more areas for improving the model if the results are drastically inconsistent with outcomes of the past. In addition, applying the hierarchy to present-day clandestine organizations is also useful because, once verified and validated, it can provide a traceable methodology for behavioral analysts to identify cognitive and physical targets in the GWOT.

Analysis using this model could also be extended. One option is to apply the scores from the individual commitment hierarchy to a relationship database for a clandestine group using social network analysis. This methodology would provide behavioral and research analysts with a deeper insight of how the commitment, or lack thereof, for specific individuals impacts other members. For example, it would be useful to know whether a person is not as committed to the group but highly influential to other members, because their actions within the group and their departure could have more of an effect than a member who is highly committed but has less influence on his peers. Another opportunity for future analysis would be to include probabilities on the intelligence data. This would allow the analyst to determine the likelihood of the results of the model and perhaps the use of other Decision Analysis tools, such as a decision tree.

## **5.4 Conclusion**

The measurement and quantification of behavioral data will remain a challenging area for future research. This first step at quantifying commitment should be pursued further. Having the values of several behavioral analysts with expertise in different cultures will lead to more collective exhaustive measures for clandestine groups of violent extremists. The proposed model, based on VFT principles, offers significant objective insight into the subjective concepts of individual commitment and group cohesion.

**Appendix A: Key Definitions of Group Cohesion**

Author	Year	Definition of Cohesion in Groups
Leon Festinger, Stanley Schachter and Kurt Back	1950	The total field of forces which act on members to remain in the group is the cohesiveness of the group.
Stanley Schachter, <i>et al</i>	1951	Cohesion described as the "cement" binding together a group and maintaining their relationships to one another
Neal Gross and William E. Martin	1952	"The resistance of a group disruptive forces;" this study proposes that cohesiveness is associated with the strength of the relational bonds among group members [ <i>Secondary Source Explanation: Friedkin, 2004</i> ]
Lester M. Libo	1953	Cohesion is the resultant of forces acting on each member to remain in the group
Albert Pepitone and Robert Kleiner	1957	Defined in terms of interpersonal attraction among members of a team. <i>Operationally</i> , the degree of cohesiveness is reflected by the number of sociometric choices made into the team by members of that team.
Annie VanBergen and J Koekebakker	1959	Group concept (attraction-to-group is an individual measurement); Cohesiveness is referred to as a-t-g; defined as: the effect of the interaction of the motives which work in an individual to remain in or to leave the group
Bernice Eisman	1959	The total field, or resultant, of forces acting on members to remain in a group, or, in other words, as the attraction of a group for its members [Referenced Festinger, <i>et al</i> (1950) definition].
Bernice Eisman Lott	1960	Refers to the general degree of attractiveness of a group to its members. Cohesion is a group property which is inferred from the number and strength of mutual positive attitudes among the members of a group
Benjamin Wolfman	1960	Tendency of individuals to stay in their group
Walter Gruen	1965	Force to maintain the structure and norms of the group which the members have evolved through their interactions
Dorwin Cartwright	1968	Resultant of all forces acting on members to remain in the group; component forces arise from (a) attractiveness of group and (b) attractiveness of alternative memberships
Stuart M. Klein	1971	The extent to which psychological forces operate bind people together in a common purpose
Nancy Evans and Paul Jarvis	1980	The degree of unification of the group field (Van Bergen and Keobakker (1959); Group phenomenon

Janet Fulk Schriesheim	1980	Cohesiveness is associated with acceptance of task-related roles, development of group norms and orientation and direction of group members toward task accomplishment
William Piper, <i>et al</i>	1983	Basic bond or uniting force in a group
John H, Johns, <i>et al</i>	1984	The degree to which members of a group or organization are willing to subordinate their individual welfare to that of the group and to conform to the standards of behavior, or norms of the group; also references Festinger (1950)
Darryl Henderson	1985	Cohesion exists in a unit when the primary day-to-day goals of the individual soldier, of the small group with which he identifies, and of unit leaders are congruent--with each giving his primary loyalty to the group so that it trains and fights as a unit with all members willing to risk death to achieve a common objective.
Frederick Wong	1985	Developed a formula for building group cohesion: Stability + Stress + Success = Cohesion
James Griffith	1988	Willingness to stay in the group; Group concept (Commitment is an individual attribute)
Stephen Zaccaro and Charles Lowe	1988	The resultant of all the forces acting on the members to remain in the group [Referenced Festinger, <i>et al</i> (1950) definition].
Stephen Zaccaro	1991	The resultant of all the forces acting on the members to remain in the group; Major forces contributing to membership initiation and maintenance include interpersonal liking and group task attraction [Referenced Festinger, <i>et al</i> (1950) definition].
Brian Mullen and Carolyn Cooper	1995	The resultant of all the forces acting on the members to remain in the group [Referenced Festinger, <i>et al</i> (1950) definition].
Carron, Brawley, and Widmeyer	1998	The dynamic, multi-dimensional process by which a group remains united in pursuit of goals and objectives, and/or satisfaction of group members's needs
LtCol James M Smith	1998	This article analyzes the roots and current manifestations of the USAF's cohesion problem, defining and developing the problem as a basis for some broad suggestions to how the service can begin to model itself into a more cohesive force for the 21st century
Rupert Brown	2000	Group and individual concept; cohesion is more of an attraction to the idea (or cause) of the group rather than interpersonal attraction to specific individuals

Paul T. Bartone, <i>et al</i>	2002	Basic bond or commitment of members to the group, a bond that is not reducible to multiple components such as affective and instrumental subtypes
James Griffith	2002	A force in groups that prevents members from planning to leave or actually leaving the group, in particular under stressful circumstances
Brendan N. McBreen, Maj, USMC	2003	Cohesion is the bonds of trust between members of a small group; only applies to small primary groups with face-to-face relationships
Leonard Wong, Col Thomas A. Kolditz, LtCol Raymond A Millien and Col Terrence M Potter	2003	Bonds between soldiers; <b>Social cohesion:</b> quality of the bonds of friendship and emotional closeness among unit members; <b>Task Cohesion:</b> commitment among unit members to accomplish a task that requires the collective efforts of the unit
Noah Friedkin	2004	Cohesion is the resultant of forces acting on each member to remain in the group [modified Festinger, <i>et al</i> (1950) definition]

## **Appendix B: Key Definitions of Commitment**

*Source: Meyer and Herscovitch, 2001:302-303*

	<b>Author</b>	<b>Year</b>	<b>Definition of Commitment</b>
<i>In general</i>	Becker	1960	Commitment comes into being when a person, by making a side bet, links extraneous interests with a consistent line of activity
	Salancik	1977	A state of being in which an individual becomes bound by his actions and through these actions to beliefs that sustain his activities of his own involvement
	Scholl	1981	A stabilizing force that acts to maintain behavioral direction when expectancy/equity conditions are not met and do not function
	Brickman	1987	A force that stabilizes individual behavior under circumstances where the individual would otherwise be tempted to change one's behavior
	Oliver	1990	One's inclination to act in a given way toward a particular commitment target
	Brown	1996	An obligating force which requires that the person honor the commitment, even in the face of fluctuating attitudes and whims
<i>Organizational commitment</i>	Modway, <i>et al</i>	1979	The relative strength of an individual's identification with and involvement in a particular organization
	Wiener	1982	The totality of normative pressures to act in a way which meets organizational goals and interests
	O'Reilly and Chatman	1986	The psychological attachment felt by the person for the organization; it will reflect the degree to which the individual's internalizes or adopts characteristics or perspectives of the organization
	Allen and Meyer	1990	A psychological state that binds the individual to the organization (i.e. makes turnover less likely)
	Mathieu and Zajac	1990	A bond or linking of the individual to the organization
	Rusbult and Farrell	1983	Refers to the likelihood that an individual will stick with a job, and feel psychologically attached to it, whether it is satisfying or not
<i>Goal commitment</i>	Blau	1985	One's attitude toward one's profession or vocation
	Carson and Bedein	1994	One's motivation to work in a chosen vocation
	Campion and Lord	1982	An unwillingness to subsequently reduce goals to a lower level when confronted with error signals
	Locke, <i>et al</i>	1988	One's attachment to or determination to reach a goal, regardless of the goal's origin
	Hollenbeck, Williams, and Klein	1989	The determination to try for a goal and the persistence in pursuing it over time

*Commitment to  
organizational  
change*

*Commitment to  
a strategy*

Tubbs	1993	A committed person is thought to adopt a specific performance goal and to persist in attempts to reach it even through difficulties
DeShon and Landis	1997	The degree to which the individual considers the goal to be important, is determined to reach it by expending effort over time, and is willing to abandon or lower the goal when confronted with setbacks and negative feedback
Herscovitch	1999	A psychological state that binds an employee to a course of action deemed necessary for the successful implementation of a change initiative
Weissbein, Plamondon, and Ford	1998	Involves the willingness of the person to put forth the effort to enact the strategy

## *Appendix C: Description of the Individual Commitment Hierarchy*

### **Hierarchy Development and Purpose**

This research identifies and clarifies factors significant to the commitment of members of a clandestine group. These factors are based on group dynamics and psychology surrounding organizational commitment and small-group cohesion. This “first cut” hierarchy modeling the significant factors contributing to individual commitment was developed based on the literature surrounding group cohesion and organizational commitment of individual employees, applied to the body of knowledge concerning the nature of clandestine organizations of violent extremists. The model uses the identified critical attributes to evaluate members of the group to assist in identifying their individual vulnerabilities, and thereby aid in courses of action to exploit fissures within the cohesion of the group.

### **Overall Objective**

The primary objective of this research is to gauge the commitment level of the members of a clandestine organization of violent extremists. The hierarchy will be used to identify exploitable fissures specific to each individual’s commitment in order to have a more accurate idea of how to influence the members in the cognitive battlespace. This model allows behavioral analysts to investigate the factors that contribute to an individual’s commitment; their strengths and weaknesses. The significance of this model to Influence Operations is that it reveals the individual’s potentially exploitable commitment vulnerabilities. This allows the analysts to more accurately recommend approaches to influence the individual in the cognitive battlespace.

## **First Tier**

### **Primary Group**

An individual's bond to their primary group is an important element to consider in gauging their overall commitment. A primary group is defined by Johns, *et al* (1984) as "a small group characterized by intimate face-to-face association and cooperation" [Johns, *et al*, 1984:6]. Some researchers have suggested cohesion can only exist among primary groups because face-to-face interactions have a significant positive effect on building strong bonds between participants [Johns, *et al*, 1984:8; Wong, 1985:20; McBreen, 2002:5]. However, while face-to-face groups are encouraged and recommended, they are not absolutely necessary to build commitment and cohesion within primary groups because today's technology has made attaining cohesion possible without being having face-to-face contact [Moody and White, 2001:104]. There are several ways to measure an individual's commitment to their primary group, which will be covered later in this appendix.

### **Organization**

The commitment to a member's group captures the member's allegiance to the entire organization, beyond their primary group [Piper, *et al*, 1983:103]. The affinity a member feels towards their organizational is also an essential consideration because the entire organization will have the ability to meet certain needs that cannot be met by the primary group. Several studies have shown that it is not just the number of people that join a group and whether or not those people are friends, but rather the number of participants remaining active in the group that is significant to determining cohesiveness

within the organization. There are several factors that influence whether a person has pride in the group and therefore is inclined to remain a member.

### Organizational Principles

The extent to which a member is committed to fulfilling the goals and vision of the organization is the third type of bond that should be explored in order to accurately gauge an individual's commitment to the clandestine group. Klein (1971) expanded the Festinger, *et al* (1950) definition by simply including this component of cohesion in his description of cohesion as “the extent to which psychological forces operate to bind people together in a common purpose” [Klein, 1971:7]. This bond is also independent of the individual's commitment to their primary group and to the organization. Brown (2000) stated that cohesion was not just based on interpersonal attraction between the members, but that it was also necessary to include the attraction to the goal, idea, or cause defining the group's purpose [Brown, 2000:47]. In addition to being significant to gauging an individual's commitment, estimating the commitment level of members toward the organizational principles is necessary to gain a better understanding of the potential fate of the group.

### **Second Tier**

#### Three Components of Organizational Commitment

Meyer and Allen (1991) define organizational commitment as

*A psychological state that (a) characterizes the employee's relationship with the organization and (b) has implications for the decision to continue membership in the organization [Meyer and Allen, 1991:67].*

In behavioral science and management literature organizational commitment has been commonly thought of as the bridge linking individuals to their organizations [Laka-

Mathebula, 2004:2]. Researchers have described commitment as a *stabilizing* and *binding force* that leads an individual toward a particular course of action, independent of all other motives [Meyer and Herscovitch, 2001:301].

Allen and Meyer’s model considers three dimensions of commitment: *affective commitment (AC)*, *continuance commitment (CC)*, and *normative commitment (NC)* [Allen and Meyer, 1990:2]. Their model of organizational commitment assumes that each dimension of commitment is significant and leads to different outcomes and implications in the workplace. The three components are summarized in Table C.1. In the hierarchy, individual commitment to each bond, primary group, organization, and organizational principles, are separated into these three components.

**Table C.1** Summary of the three components of organizational commitment

<b>Commitment Type</b>	<b>Definition</b>	<b>Description</b>
Affective	<ul style="list-style-type: none"> <li>• An individual's "emotional attachment to, identification with, and involvement in the organization" or supporting a cause [Meyer and Allen, 1991:67]</li> <li>• The emotional attachment, identification with, and involvement in the organization [Allen and Meyer, 1990:2]</li> </ul>	<i>Want to</i>
Continuance	<ul style="list-style-type: none"> <li>• An individual's "awareness of the costs associated with leaving the organization" or discontinuing their support of a cause [Meyer and Allen, 1991:67]</li> <li>• An awareness of the costs associated with leaving the organization [Allen and Meyer, 1990:3]</li> </ul>	<i>Need to</i>
Normative	<ul style="list-style-type: none"> <li>• An individual's feeling of moral obligation to remain in the organization or continue to support its cause [Meyer and Allen, 1991:67]</li> <li>• A feeling of moral obligation to continue to remain a member of an organization [Allen and Meyer, 1990:3]</li> <li>• The totality of internalized normative pressures to act in a way which meets organizational goals and interests" [Weiner, 1982:421]</li> </ul>	<i>Ought to</i>

### **Hierarchy of Individual Commitment to a Clandestine Group**

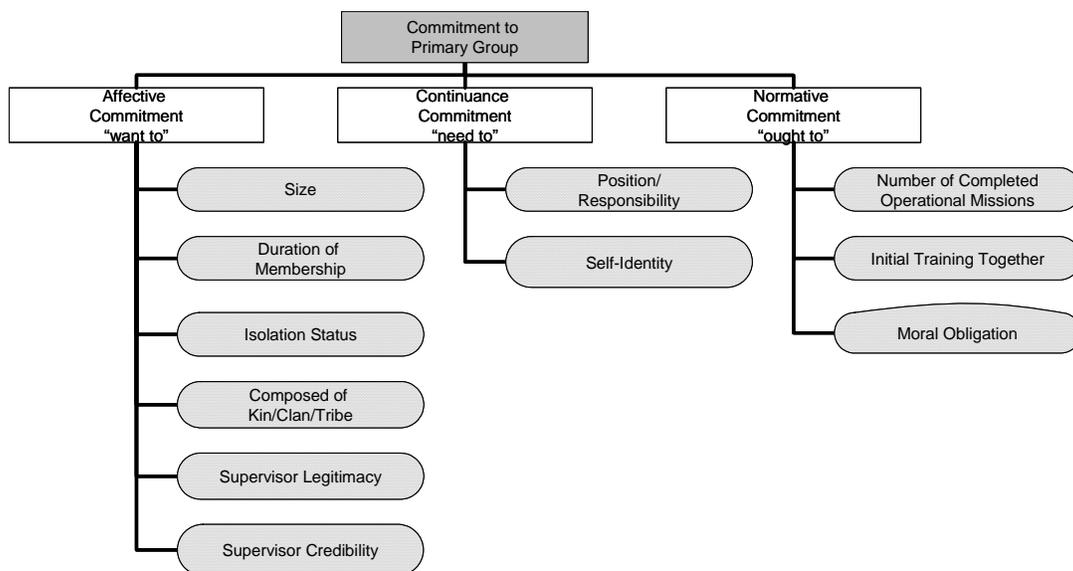
This section of Appendix C provides detailed explanation of the measures developed to gauge the individual commitment of the members of a clandestine

organization of terrorist extremists. The section is divided into three sections corresponding to the three bonds an individual typically makes when they join an organization. First, the sub-hierarchies is shown followed by an explanation of each of the measures and the single-dimensional value function (SDVF). Each SDVF score ranges from 0 to 1, with a score of “0” indicating a least committed individual and a score of “1” indicating most committed. While the measures are expected to be fairly constant, with the weighing changing for specific groups, if special circumstances warranted, SDVF could be altered or added to more accurately represent a specific group.

***Description of Measures***

***Primary Group***

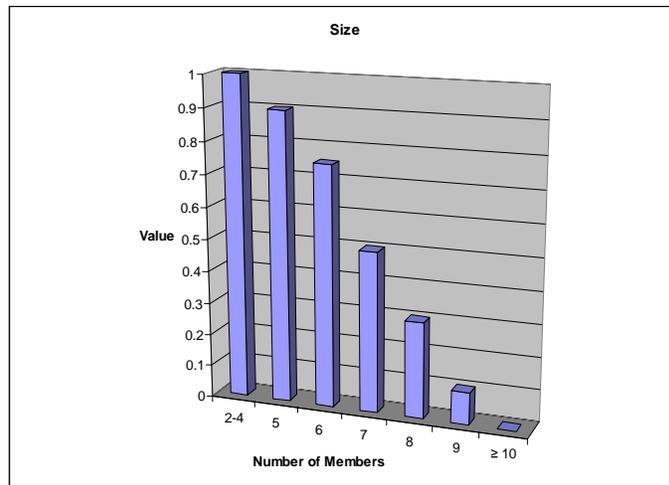
The description and development of the measures used to score an individual’s commitment to their primary group will now be explained. The *Commitment to Primary Group* sub-hierarchy is shown in Figure C.1.



**Figure C.1** *Commitment to Primary Group* Sub-Hierarchy

Primary Group—Size

The *Size* of the primary group is a proxy measure of the individual’s contacts, with the purpose of gauging the affective commitment towards their primary group. This score is based on the number of members the individual typically has the most frequent interactions. The scoring of this function, shown in Figure C.2 and Table C.2, is based on the notion that a smaller primary group is desirable for an organization with more committed individuals. According to Brown (2000), a group has to include at least two people. Therefore, the scoring gives the range of 2-4 people a score of 1. According to Subject-Matter Experts (SMEs), a small group with 10 or more people is typically unproductive and receives a value of 0.



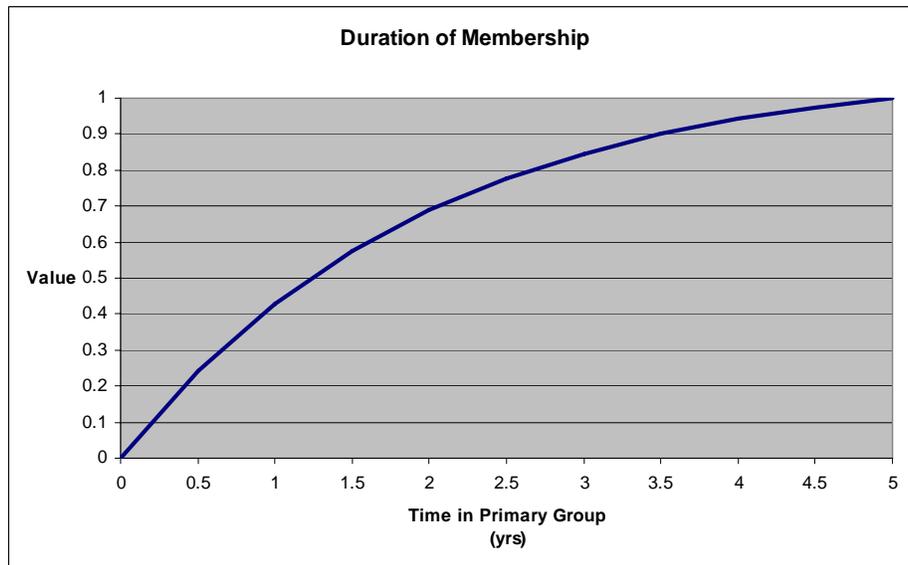
**Figure C.2** SDVF for *Size*

**Table C.2** Categorical Scoring for *Size*

Number of Members	Value
≥ 10	0
9	0.1
8	0.3
7	0.5
6	0.75
5	0.9
2-4	1

Primary Group—Duration of Membership

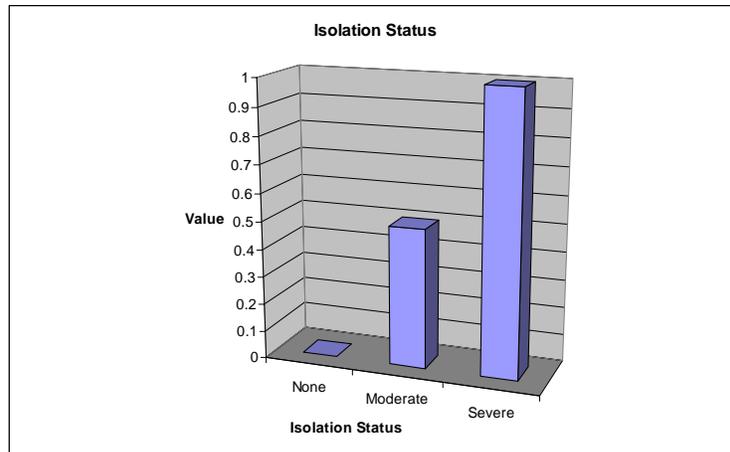
*Duration of Membership* is a natural-directed measure that aims to capture the affective commitment of the individual member to their primary group due to the length of their membership. According to Driscoll (2005) the longer a person is a member of a clandestine group of terrorist extremists, the more difficult it will be to degrade their commitment or impact them cognitively, all other things being equal. In this research, any person who has been a member of their clandestine organization for five years or more is considered highly committed. The SDVF, shown in Figure C.3, is monotonically increasing. The SDVF illustrates that once a person becomes a member, despite being a member for a short time, their score rapidly increases. However, it will generally be difficult to execute influence operations on an individual who has been a member for five years or more. Operationally, the upper threshold for this measure will be group will be organization dependent and can be adjusted to best fit the dynamics of the group.



**Figure C.3** SDVF for *Duration of Membership*

Primary Group—Isolation Status

*Isolation Status* is a constructed-proxy measure designed to evaluate the dependence of the individual on their primary group. Several studies (Henderson, 1985; Sageman, 2004; Driscoll, 2005) have shown that isolation is a key practice of organizations post-recruitment. Typically the individual is shut off from the outside influences and kept with their primary group so their dependence on the group develops as their new friendships form within the primary group. Researchers (Brown, 2000; McBreen, 2002) have shown that group interdependence is a direct result of the level of isolation of the individual. In other words, the more isolated an individual is from the outside world, the more likely they are to be more committed to their primary group. The SDVF for *Isolation Status* is shown in Figure C.4 and the categorical scores are given in Table C.3.



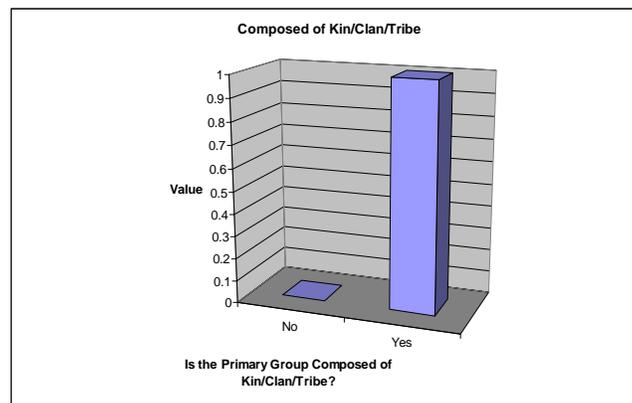
**Figure C.4** SDVF for *Isolation Status*

**Table C.3** Categorical Scoring for *Isolation Status*

Isolation Status	Value
None: Not isolated from outside influences	0
Moderate: Allowed to interact with outsiders, but with supervision by other group members	0.5
Severe: Completely isolated from outside influences	1

Primary Group—Composed of Kin/Clan/Tribe

*Composed of Kin/Clan/Tribe*<sup>12</sup> is a proxy measure to capture the intimacy level between the individual and the members of their primary group by scoring the individual on whether their primary group is composed primarily of their family members or people with whom they have intimate, family-like relationships. This is a measure that was developed after reviewing the literature on clandestine networks via discussion. Since clandestine networks depend on loyalty and trust more than overt organizations, it is likely that primary groups may be composed of people with family-like relationships, in addition to other weak ties that have developed over the years. The rationale for including this measure is that it captures the individual's affective commitment, or emotion bond, to their primary group that is contributed by serving with their family members. This is a significant inclusion because a person is likely to be more committed to a group if their family (or family-like friends) are the people they will let down if they depart the group. The SDVF is shown in Figure C.5 and the scoring is given in Table C.4.



**Figure C.5** SDVF for *Composed of Kin/Clan/Tribe*

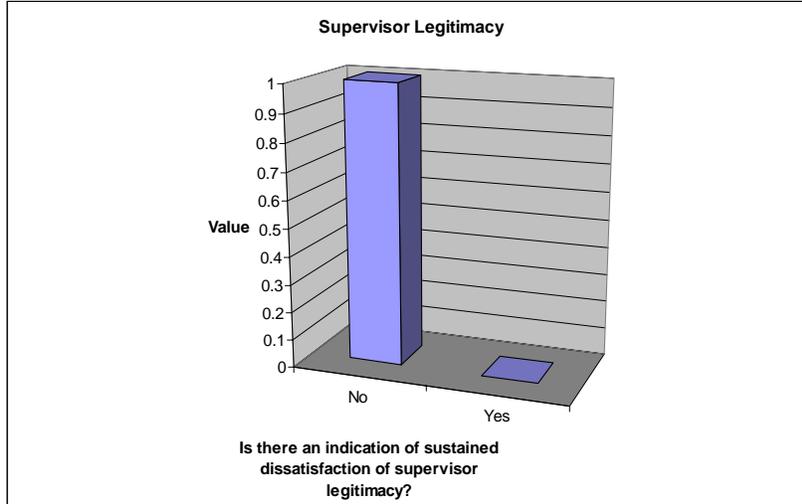
<sup>12</sup> Definitions for Kin, Clan, and Tribe can be found in Appendix D: Glossary

**Table C.4** Categorical Scoring for *Composed of Kin/Clan/Tribe*

Composed of Kin/Clan/Tribe	Value
No	0
Yes	1

*Primary Group—Supervisor Legitimacy*

*Supervisor Legitimacy* refers to the means by which the supervisor of the primary group came to be in charge. If the supervisor was appointed via the accepted method of the group, then an individual will be more likely to accept and follow this person without dissention. An accepted method will be group dependent. In a democracy, the leader may be elected. In some tribal cultures, a leader may be selected through heredity or appointed by elders from within or from outside of the group. It is assumed that commitment is lowered when a leader assumes command in some method often than the tradition approach. Capturing the concept of the individual's perception of the legitimacy of the supervisor is important, particularly because of the intimate nature of the primary group. The purpose of this measure is to detect any sustained dissatisfaction from the individual concerning the legitimacy of the supervisor. The SDVF is a simple yes/no response to whether there is dissention from the individual regarding the legitimacy of the leadership. The SDVF and Categorical scoring are shown in Figure C.6 and Table C.5, respectively.



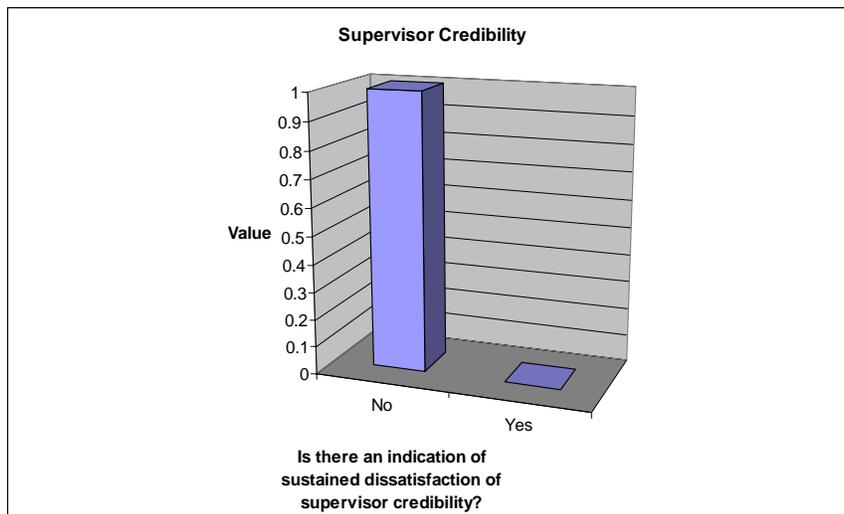
**Figure C.6** SDVF for *Supervisor Legitimacy*

**Table C.5** Categorical Scoring of *Supervisor Legitimacy*

Is there an indication of sustained dissatisfaction of Supervisor Legitimacy?	Value
No	1
Yes	0

Primary Group—Supervisor Credibility

*Supervisor Credibility* is significant for any group of people because the higher the credibility of the supervisor, the more likely the subordinates are to trust their judgment and be good followers. Credibility is also important in a primary group because of its small size and the intimate relationships between its members. This measure will be scored similar to the Supervisor Legitimacy. The goal is identify any indication of sustained dissention from the individual concerning the supervisor's credibility. The SDVF and Categorical Scoring are given in Figure C.7 and Table C.6, respectively.



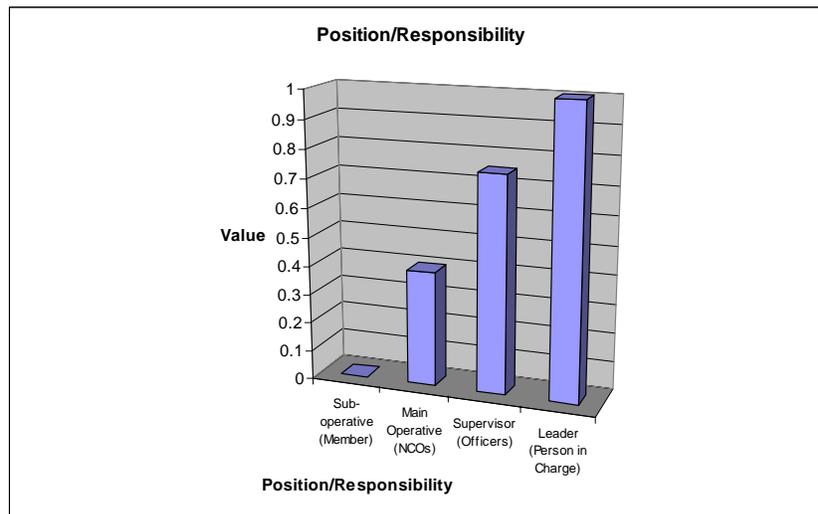
**Figure C.7** SDVF for *Supervisor Credibility*

**Table C.6** Categorical Scoring for *Supervisor Credibility*

Indication of sustained dissention of Supervisor Credibility?	Value
No	1
Yes	0

Primary Group—Position/Responsibility

*Position/Responsibility* is included as a measure because, more often than not, commitment tends to be directly correlated with an individual’s position or responsibility in the group. It is also important to know the position and responsibility of an individual because it gives insight into how accessible they are. For example, if a person in the leader of the primary group, then their affective commitment towards the primary group would most likely be greater than an individual working in a main or sub-operative role. In addition, the leadership, even if it is just of the primary group, may be less accessible than a person who is perhaps completing menial day-to-day tasks such as the member with sub-operative responsibilities. The SDVF and categorical scoring is given in Figure C.8 and Table C.7, respectively.



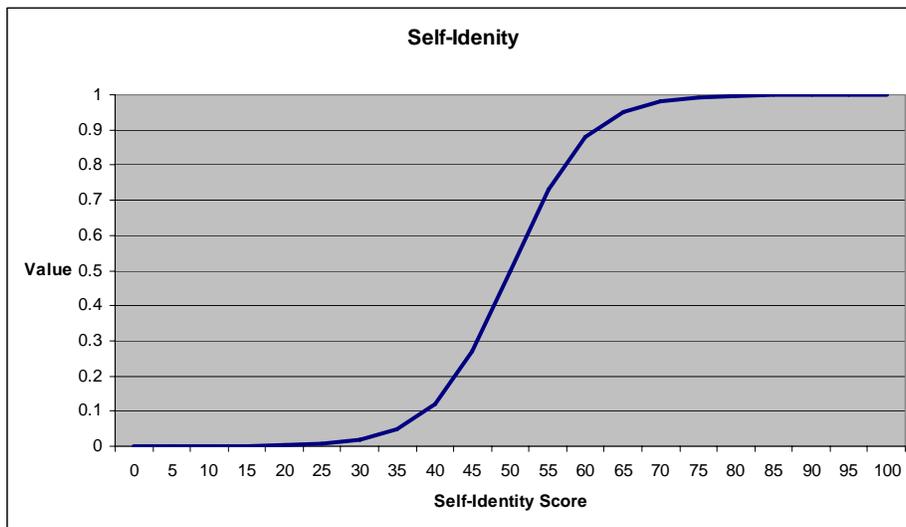
**Figure C.8** SDVF for *Position/Responsibility*

**Table C.7** Categorical Scoring for *Position/Responsibility*

Position/ Responsibility	Value
Sub-operative (Member)	0.1
Main Operative (NCOs)	0.4
Supervisor (Officers)	0.75
Leader (Person in Charge)	1

Primary Group—Self-Identity

*Self-Identity* intends to capture the origin of the individual’s sense of self. Specifically, the measure will be scored using an S-curve based on whether the individual’s identity is inseparable from the primary group’s identity or if it is significantly influenced by activities and people external from the primary group and organization. An individual with an identity indistinguishable from the group’s identity is considered more committed and will receive a score of 1. Oppositely, an individual whose identity is significantly influenced by factors external to the organization is thought to be less committed and will receive a score of 0. The SDVF is shown in Figure C.9 with the scoring values in Table C.8.



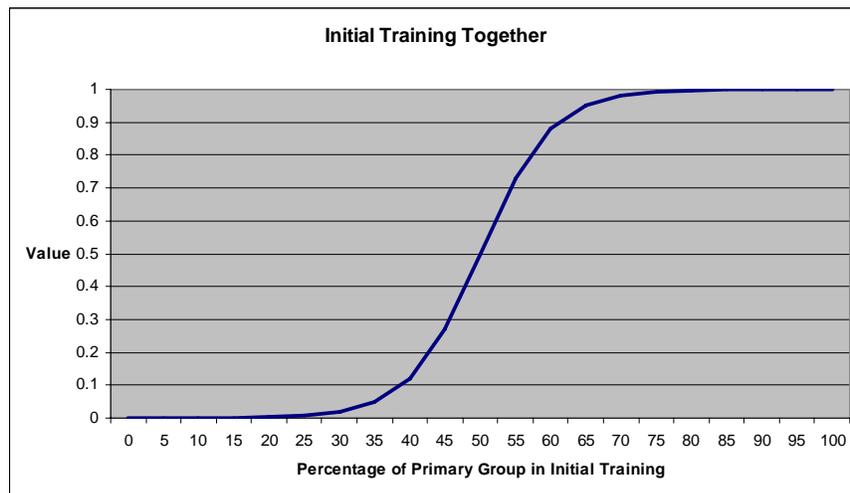
**Figure C.9** SDVF for *Self-Identity*

**Table C.8** Scoring for *Self-Identity*

Self-Identity	Value
Evidence self-identity is influenced influences external to the primary group	0
Evidence self-identity is inseparable from the identity of the primary group	1

Primary Group—Initial Training Together

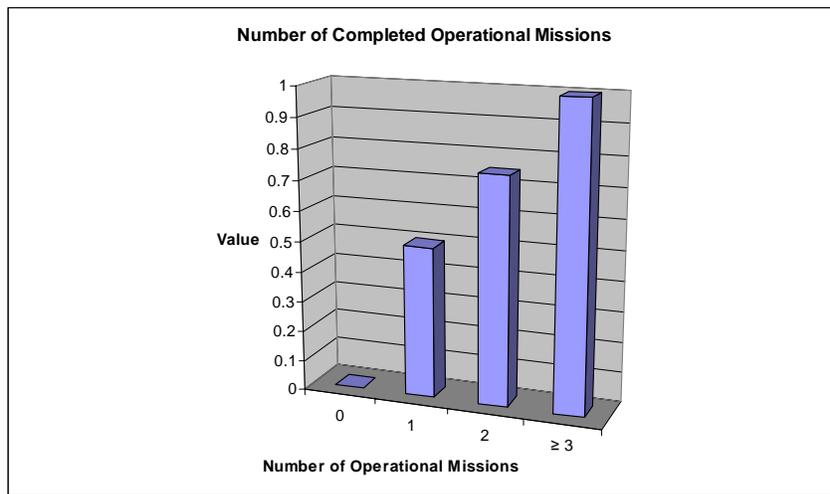
*Initial Training Together* measures whether the individual completed their initial organizational training with the members of their primary group. Wong (1985) suggests that Stress is an essential ingredient to a cohesive unit [Wong, 1985:29]. In Sageman's (2004) study, he discusses how when members of al Qaeda complete their initial training together, the bonds they have created are almost unbreakable [Sageman, 2004:109-110]. This is especially significant in primary groups that must complete dangerous missions together. Their trust for one another needs to be deep and developed early in order to be able to execute the missions assigned by the group. The scoring for this measure is based on the percentage of members of the primary group that completed their initial training together. The SDVF is an S-curve illustrating the scoring shown in Figure C.10.



**Figure C.10** SDVF for *Initial Training Together*

Primary Group—Number of Completed Operational Missions

The *Number of Completed Operational Missions* is important to the commitment of an individual to their primary group. Beyond the individual’s initial training to become a member of the group, participating in stressful events with members strengthens the bonds they make with the other members of the primary group. According to SMEs, it does not take many completed missions for the individual’s commitment to be significantly impacted. As a result, after three completed operational missions an individual will receive a score of 1. The SDVF and categorical scoring is shown in Figure C.11 and Table C.9.



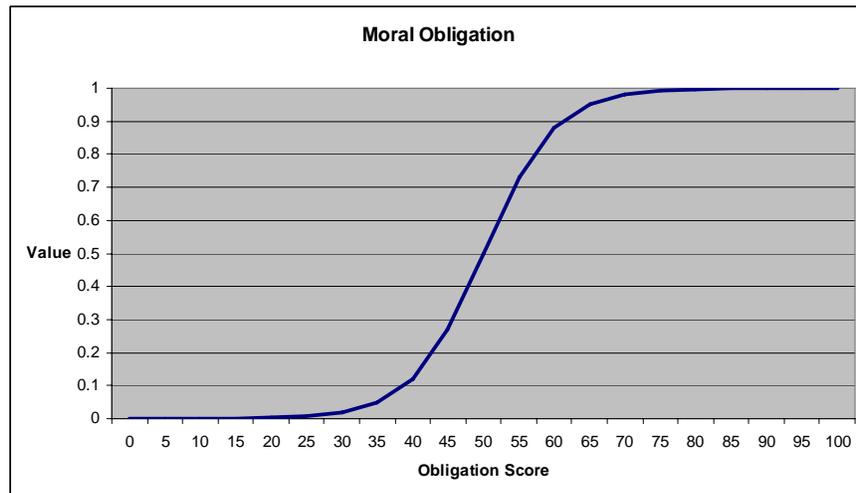
**Figure C.11** SDVF for *Number of Completed Operational Missions*

**Table C.9** Categorical Scoring for *Number of Completed Operational Missions*

Number of Completed Operational Missions	Value
0	0
1	0.5
2	0.75
≥ 3	1

Primary Group—Moral Obligation

*Moral Obligation* is included as a measure to capture an individual's demonstrated self-sacrifice for the benefit of the primary group. While there may exist unfulfilled hopes, ambitions, and dreams, this measure is confined to contain only those that can be observed in open source, human intelligence, or by national technical means. For example, the individual that remains in the family business even though it is obviously not their passion and they have given up several alternate job opportunities would be considered to have given up their personal dreams for their primary group. Clearly, this measure will be culturally defined because an individual's morals are specific to their environment and influences. This measure is scored by an S-curve, shown in Figure C.12 and the scoring range is given in Table C.10.



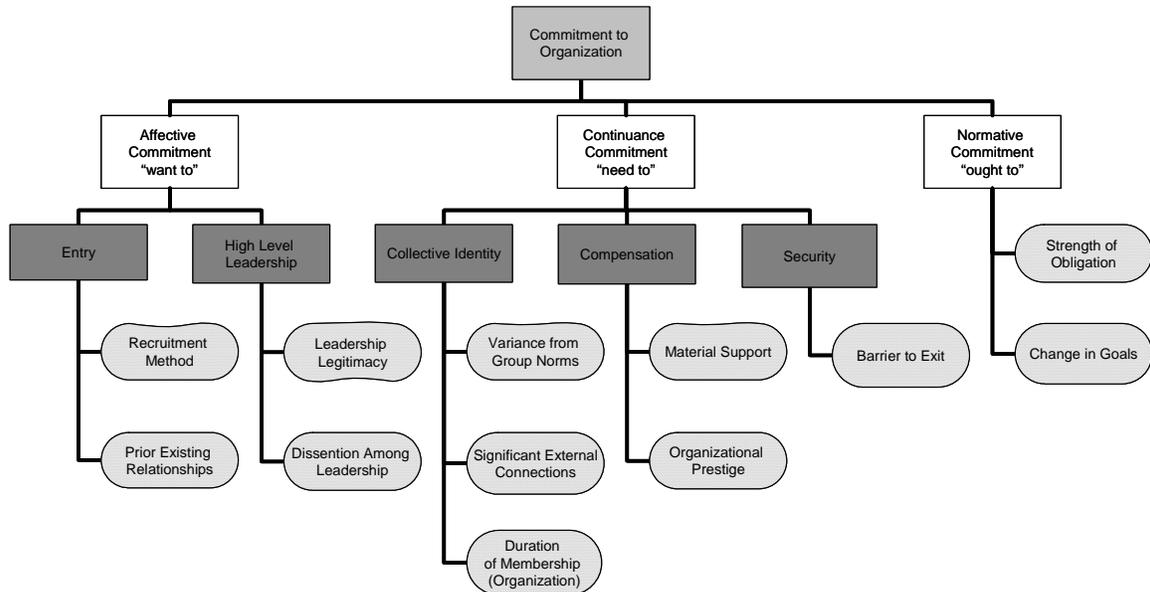
**Figure C.12** SDVF for *Moral Obligation*

**Table C.10** Scoring Range for *Moral Obligation*

Moral Obligation	Value
Demonstrated a lack of self-sacrifice for the group	0
No demonstration of self-sacrifice or lack thereof	0.5
Demonstrated a major act of self-sacrifice for the group	1

## Organization

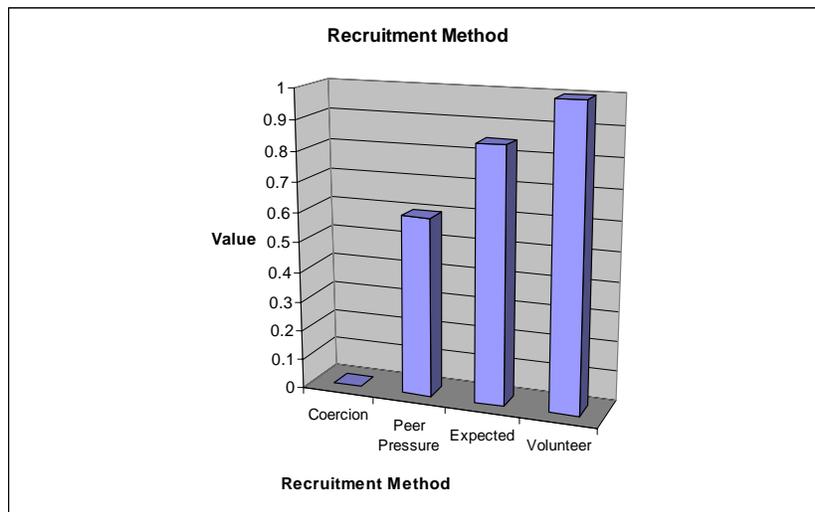
There are several measures that influence an individual's commitment to their organization. The sub-hierarchy in Figure C.13 illustrates the factors contributing to an individual's commitment to a clandestine group via their affinity to the organization.



**Figure C.13** Commitment to Organization Sub-Hierarchy

Organization—Recruitment Method

*Recruitment method* refers to how the individual came to be a member of the group. The method surrounding the individual’s entry is significant to their emotional commitment to the organization. It is logical that those members that volunteered to join the group are more likely to have a high commitment to the organization versus those members that were coerced, extorted, and/or threatened. The categorical SDVF is shown in Figure C.14 and the scoring range is given in Table C.11.



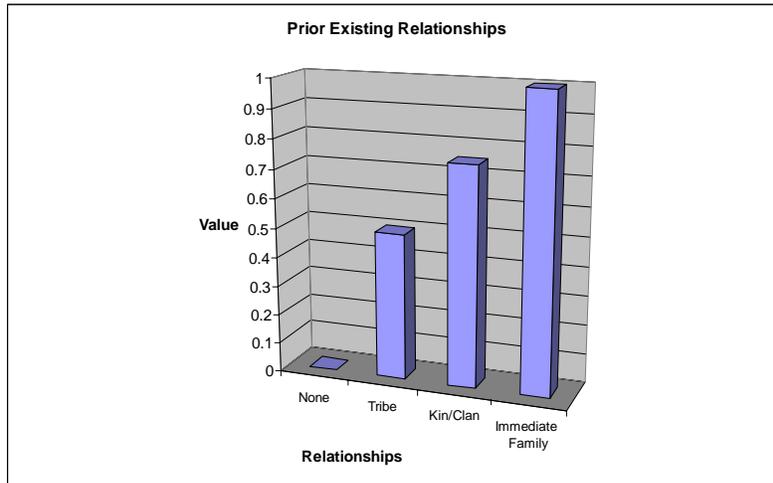
**Figure C.14** SDVF for *Recruitment Method*

**Table C.11** Categorical Scoring for *Recruitment Method*

Recruitment Method	Value
Coercion	0
Peer Pressure	0.6
Expected	0.85
Volunteer	1

Organization—Prior Existing Relationships

*Prior Existing Relationships* is included to capture the individual’s connection with other members of the organization, external from the primary group, at the time of joining the organization. This measure will be scored based on the significance of the individual’s prior existing relationships. For instance, marriages and immediate family members are scored higher than casual friendships. The categories of this measure may also be adjusted to fit the cultural and group norms. In addition, if a person is involved in more than one type of relationship at the time of joining, their score will be based on the most significant one. An example would be an individual whose parent (immediate family) is a member may have also have a best friend (kin/clan) or acquaintances (tribe) that are also members. This individual would receive a score of 1 because of their relationship with their parents. The categorical SDVF is illustrated in Figure C.15 and the categorical scorings and definitions<sup>13</sup> are given in Table C.12.



**Figure C.15** SDVF for *Prior Existing Relationships*

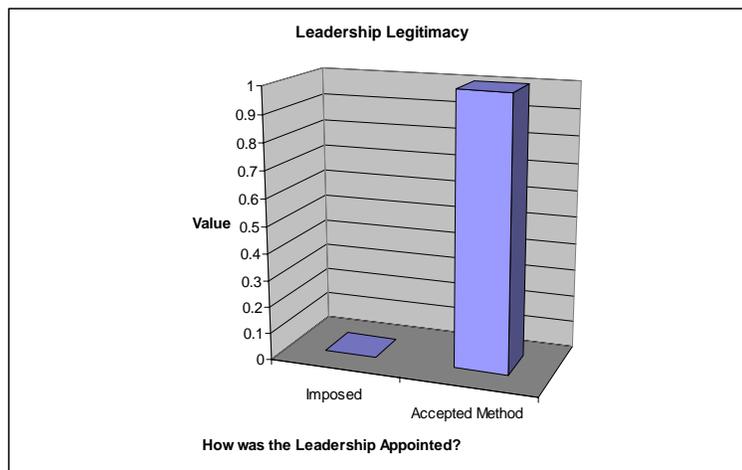
<sup>13</sup> See Appendix D for a glossary of significant terms in this research

**Table C.12** Categorical Scoring for *Prior Existing Relationships*

Prior Existing Relationships	Value
None	0
Tribe: members of individual's community	0.5
Kin/Clan: members of the individual's extended family and close friends	0.75
Immediate Family: people the individual shares a common dwelling with and has intimate relationships with	1

Organization—Leadership Legitimacy

*Leadership Legitimacy* is included as a measure to capture the individual's perception of legitimacy of those appointed to high level leadership in the organization, exclusive of the primary group. The legitimacy of the leadership of the organization is important because an individual is more likely to accept a leader that was appointed via the acceptable means for the group rather than being imposed on the group by an abnormal means. Like the primary group, this is a categorical measure based on whether the organizational leadership has assumed command by traditionally accepted means, which would be specific to the group. The categorical SDVF and categorical scoring are given in Figure C.16 and Table C.13, respectively.



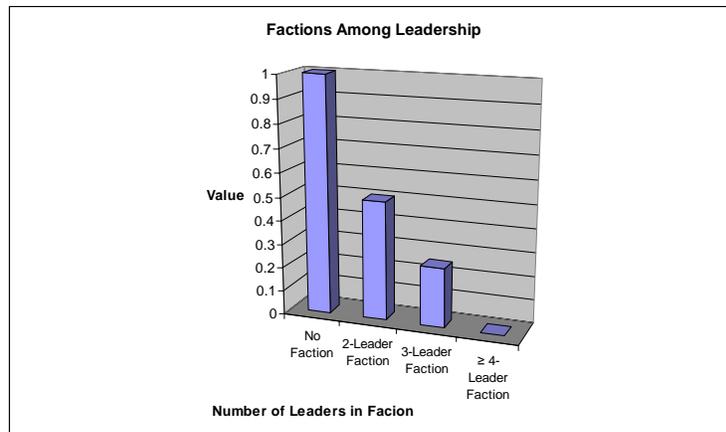
**Figure C.16** SDVF for *Leadership Legitimacy*

**Table C.13** Categorical Scorings for *Leadership Legitimacy*

Leadership Legitimacy	Value
Imposed: Leadership put in place by abnormal means	0
Accepted Method: Leadership put in place by the group's normal method	1

Organization—Factions Among Leadership

The followings of the high level leadership is also significant to the individual’s emotional commitment to the organization. *Factions Among Leadership* is a proxy to measure the unity of the high-level leadership. When there are competing factions among the high-level ranks, the commitment to the organization may decrease. That is, an individual may be more committed to their faction than to the overall organization. Therefore, this measure is scored based on how many leaders make up a faction against the leader of the organization. The SDVF is shown in Figure C.17 and the categorical scores and definitions are given in Table C.14.



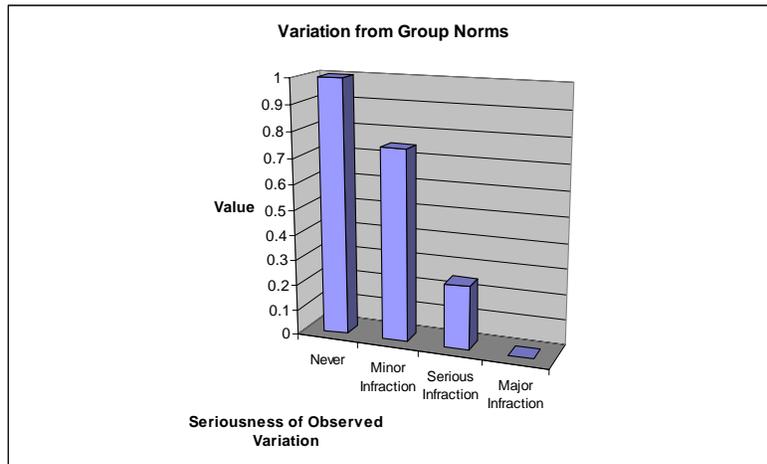
**Figure C.17** SDVF for *Factions Among Leadership*

**Table C.14** Categorical Scoring for *Factions Among Leadership*

Factions Among Leadership	Value
No Faction	1
2-Leader Faction	0.5
3-Leader Faction	0.25
> 4-Leader Faction	0

Organization—Variation of Group Norms

The observed *Variation of Group Norms* made by an individual is an indication of their collective identity, or level of “we-ness,” with the group. This measure is scored by the severity of the infractions against the group norms committed by the individual. For example, members who have committed minor infractions, equivalent to misdemeanors in the U.S. Justice System, will be scored higher than those who commit major infractions, equivalent to the highest classes of felonies in the U.S. Justice System. In a different context, it might be a major or serious infraction in some cultures to marry without the blessing of one’s family, while in another it may be considered just a minor infraction. The categorical SDVF illustrates the scoring of this measure in Figure C.18. The categorical scoring is given in Table C.15.



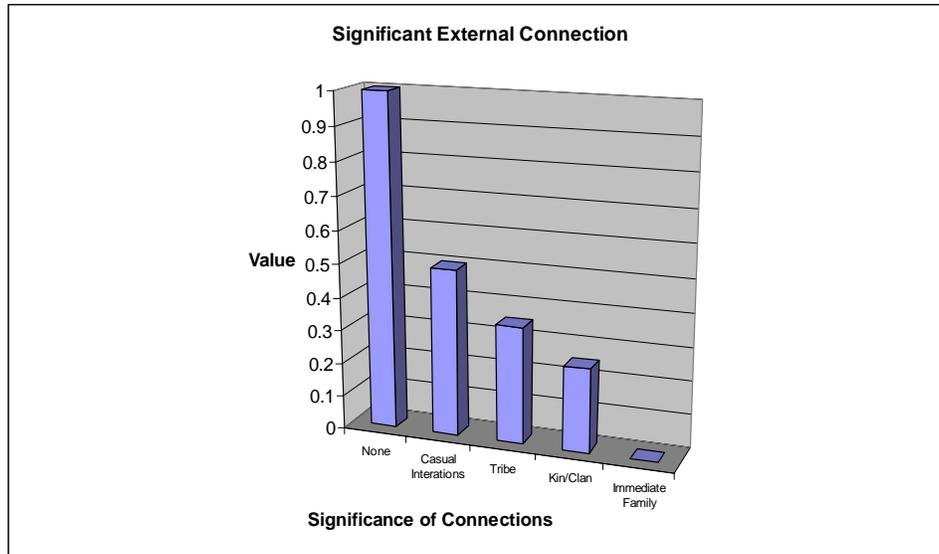
**Figure C.18** SDVF for *Variation from Group Norms*

**Table C.15** Categorical Scoring for *Variation from Group Norms*

Variation from Group Norms	Value
Never	1
Minor Infraction:	0.75
Serious Infraction: results in being shunned by the organization	0.25
Major Infraction: results in individual’s death	0

### Organization—Significant External Connections

On a similar line of thought as the logic behind *Isolation Status*, *Significant External Connections* aims to capture whether an individual has significant relationships outside of the clandestine organization while an active member. *Significant External Connection* is a critical measure because individuals with more external relationships are more accessible and potentially more vulnerable in clandestine organization. In addition, it is assumed that the more significant the external relationship, the greater the potential for dissent and the commitment of the individual will tend to be lower. This is mutually exclusive from *Isolation Status* because it scores who the individual spends their time with external to the organization versus *if* they are spending time with people external to their primary group or organization. In the event that a person has more than one external connection, they will be scored on the most significant relationship. As an example, if a member is married to a nonmember and has other close friends that are not in the group, the member will receive a score of 0 because the marriage is the most important connection. If the member is severely isolated, they will most likely have no significant external connections. However, this measure is still mutually exclusive because it deals with the nature of the external relationship rather than its existence. The categorical SDVF and categorical scoring are shown in Figure C.19 and Table C.16, respectively.



**Figure C.19** SDVF for *Significant External Connections*

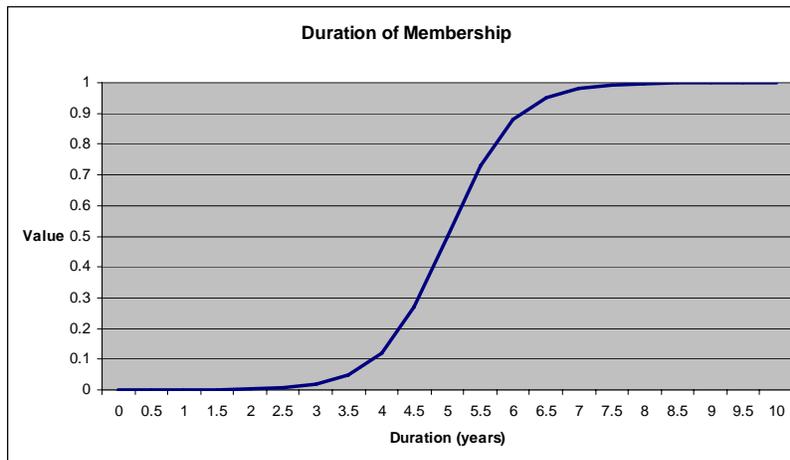
**Table C.16** Categorical Scoring for *Significant External Connections*

Significant External Connections	Value
None	1
Casual Interactions	0.5
Tribe: members of individual's community or village	0.35
Kin/Clan: members of an individual's extended family and close friends	0.25
Immediate Family: immediate family people the individual shares a common dwelling with and has intimate relationships with	0

*Organization—Duration of Membership*

The *Duration of Membership* to the organization intends to capture the length of an individual's membership in the organization, which directly impacts their *Collective Identity*, their need to remain in the group, and their commitment to the organization. It is included in the model as a separate measure from the *Duration of Membership* to the *Primary Group* because building friendships creates a different bond than the connection to an organization. In addition, an individual may have belonged to the organization longer than they have to their primary group or vice versa. According to SMEs, it usually

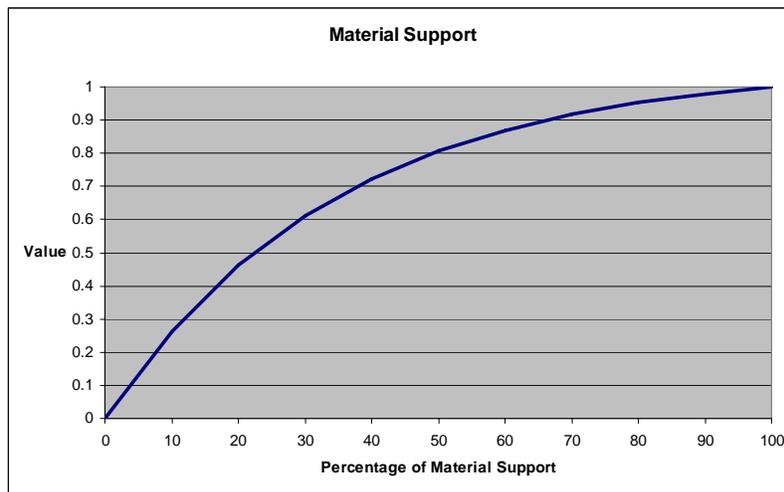
takes longer for an individual to bond to their organization than it does to bond to a small group of people. This is largely due to the criteria of the different bonds. In a primary group, friendships are built from trust, familiarity, and similarities. However, when an individual chooses to accept an organization, they must decide if their lives will reflect the goals and visions of the group, and the sacrifices they are willing to make as a result of their membership. This measure is scored using an S-curve because an individual's commitment is relatively low during the first years of membership to an organization where one begins to understand the beliefs and practices of the organization, rapidly increases as the years go by, and typically reaches a stable point. Ten years was selected as the commitment peak point, but the time period of this cycle will be organizationally dependent. The SDVF is shown in Figure C.20



**Figure C.20** SDVF for *Duration of Membership*

Organization—Material Support

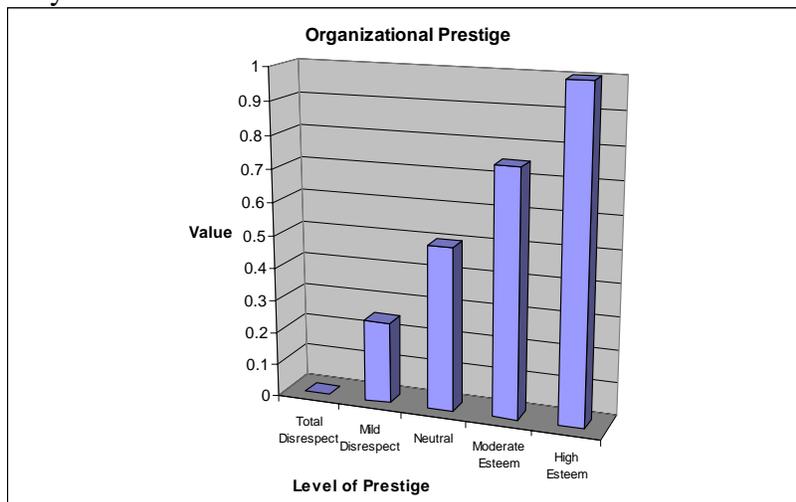
*Material Support* measures the level of compensation provided by the organization to the individual which would impact their *Continuance Commitment* and their commitment to the organization. Material support can come in several forms, physiological needs and financial support being the most popular. The critical factor for this measure is not what is being provided, but rather is how much of the support is being provide by the organization. The SDVF is an increasing exponential function which illustrates that the more material support an individual receives from the organization, the higher their level of commitment. It is important to note that if an individual receives over 30% of their material support from the organization, it is assumed they are more likely to have a higher commitment level. The SDVF is show in Figure C.21.



**Figure C.21** SDVF for *Material Support*

Organization—Organizational Prestige

*Organizational Prestige* is included as measure of Compensation as a proxy for the individual’s belongingness needs being met by the society external to the organization. Belongingness is a human need first described by Maslow (1954) and Alderfer (1972) as an individual’s need to be accepted by other people. Both authors discussed belongingness with notion that this need would be fulfilled within a group of people. However, it is important to consider society’s attitude towards a certain group as a factor of an individual’s commitment level. For example, if group members are being attacked as a result of their association with a certain organization, their commitment level may be lower than individuals who receive praise from their society just for being group members. The categorical SDVF and scoring are shown in Figure C.22 and Table C.17, respectively.



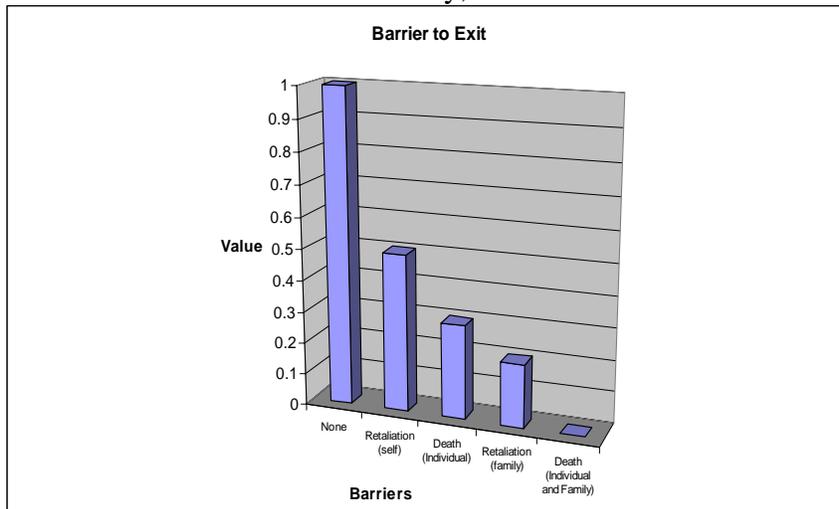
**Figure C.22** SDVF for *Organizational Prestige*

**Table C.17** Categorical Scoring for *Organizational Prestige*

Organizational Prestige	Value
Total Disrespect	0
Mild Disrespect	0.25
Neutral	0.5
Moderate Esteem	0.75
High Esteem	1

Organization—Barrier To Exit

*Barrier to Exit* is included as a proxy to objectively measure an individual’s need for *Security*. In clandestine organization of terrorist extremists, physical security for those external to the organization is probably not a high concern to the individual because of the nature of membership. However, the penalty enforced by the organization for members who desire to exit may play a significant role in an individual’s commitment level. The SDVF for *Barrier to Exit* is shown in Figure C.23 and the categorical scoring used in this study is given in Table C.18. While the individual who perceives his family will be in extreme danger if he exits may stay with the group, he may be an influence target if one could provide him assurance that he and his family would be kept safe. Therefore, the scoring ranges from no barriers to exit, with a commitment score of 1, to certain death for the individual and their family, with a commitment score of 0.



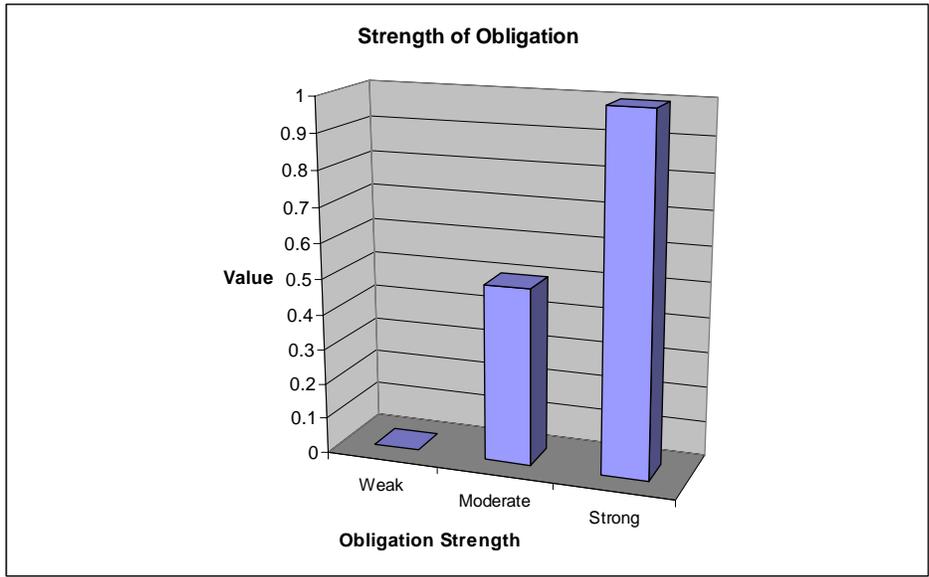
**Figure C.23** SDVF for *Barrier to Exit*

**Table C.18** Categorical Scoring for *Barrier to Exit*

Barrier to Exit	Value
None: No exit penalty enforced by the organization	1
Retaliation (self): Physical or Mental retaliation enforced on the individual	0.5
Death (Individual): Organization kills members who attempt to exit	0.3
Retaliation (family): family members experience physical or mental retaliation as a result of the member exiting the group	0.2
Death (Individual and Family): Organization kills members and their families if members attempt to exit	0

Organization—Strength of Obligation

*Strength of Obligation* is included to measure the normative pressures from the individual’s society influencing them to stay in the organization. Weiner observed that normative pressures to remain with an organization can result from cultural norms as well as “organizational socialization” [Weiner, 1982:424-425]. Since each culture and society is unique, *Strength of Obligation* is generally measured using three levels: weak, moderate, and strong. The categorical SDVF is illustrated in Figure C.24, with the corresponding scoring given in Table C.19.



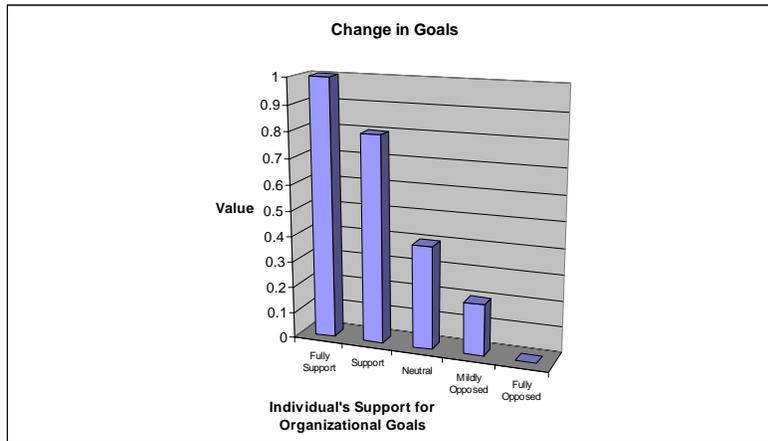
**Figure C.24** SDVF for *Strength of Obligation*

**Table C.19** Categorical Scoring for *Strength of Obligation*

Strength of Obligation	Value
Weak: There are no observed normative pressures influencing continued membership	0
Moderate	0.5
Strong: There are observed normative pressures influencing the individual’s continued membership	1

Organization—Change in Goals

*Change in Goals* is included to capture whether there has been a recent and/or significant change in goals of the organization exhibited by the individual. This measure is important to this study because sustained changes in the individual’s agreement with the organization’s goals may lead to decreased commitment to the organization. In addition, if the organization’s philosophies have evolved since the individual joined, this could lead to decreased commitment if the individual does not agree. The categorical SDVF, shown in Figure C.25 scores the individual based on their demonstration of being in sync with the goals of the group. The categorical scoring is given in Table C.20.



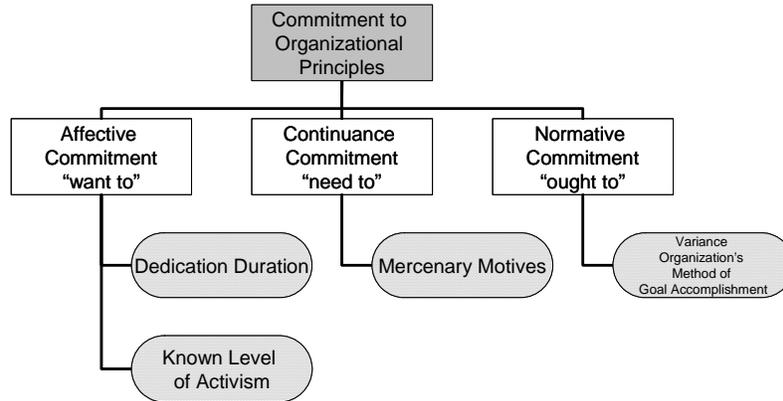
**Figure C.25** SDVF for *Change in Goals*

**Table C.20** Categorical Scoring for *Change in Goals*

Change in Goals	Value
Fully Support	1
Support	0.8
Neutral	0.4
Mildly Opposed	0.2
Fully Opposed	0

*Organizational Principles*

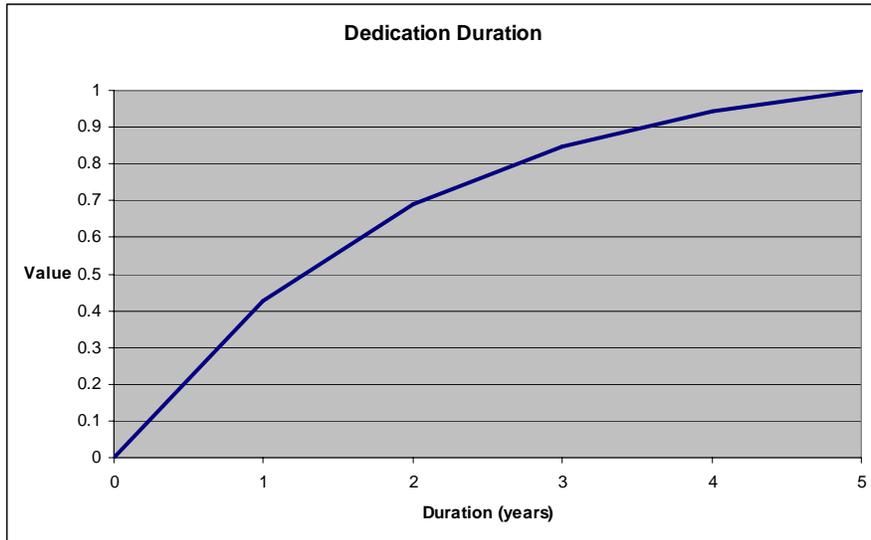
This last section will give descriptions of the measures used to gauge an individual's commitment to the organizational principles. The Commitment to Organizational Principles sub-hierarchy is illustrated in Figure C.26.



**Figure C.26** *Commitment to Organizational Principles Sub-Hierarchy*

Organizational Principle—Dedication Duration

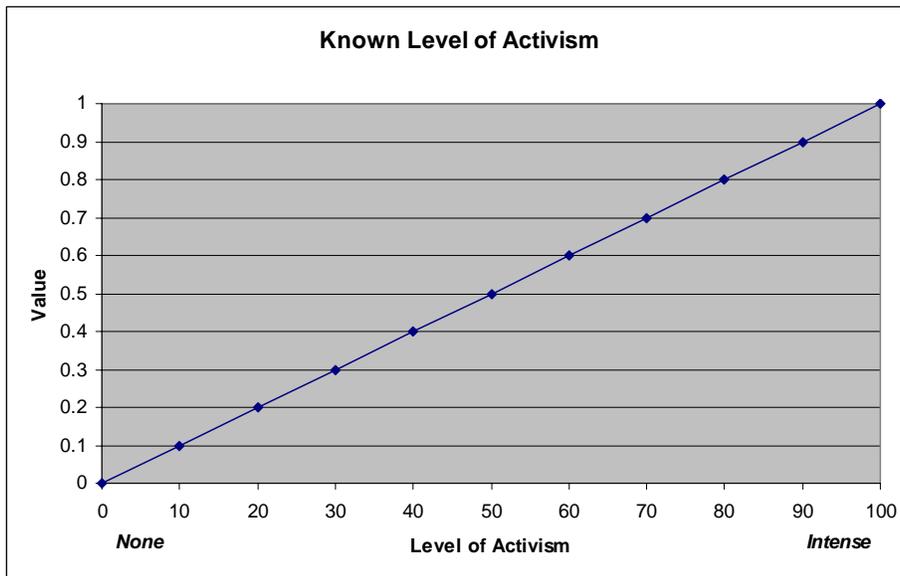
*Dedication Duration* measures the affective commitment to the organizational principles contributed by the length of time the individual has been supporting the goals and visions, independent of being a member of the group. This will be scored based on observable actions such as financial donations separate from being a member of the organization, acting as a trusted contact before making a commitment to join the group, or participating in demonstrations and other activists activities. The upper threshold of the SVDF can be adjusted to more accurately measure the group in question. The exponential SDVF is show in Figure C.27



**Figure C.27** SDVF for *Dedication Duration*

Organizational Principle—Known Level of Activism

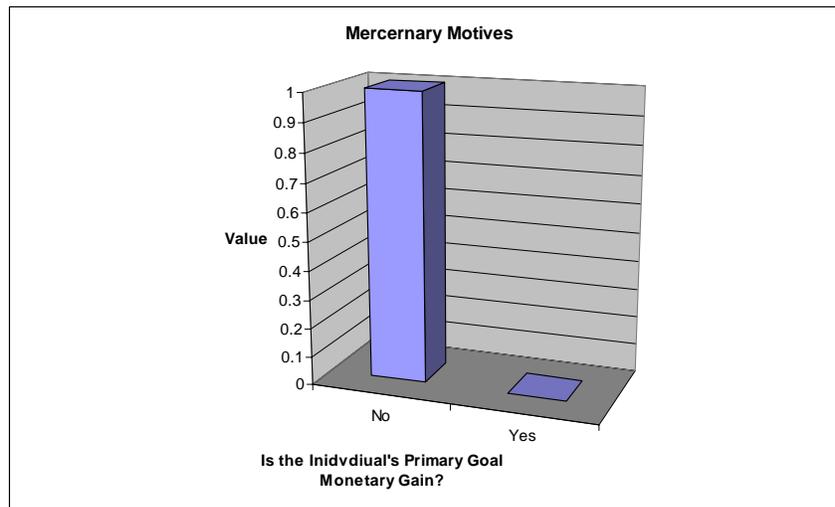
*Known Level of Activism* is included as a measure to capture the individual's zeal for the organizational principles. It represents the observed time the individual spends on average, in a work day supporting the organizational principles. The SDVF, shown in Figure C.28, for this measure is linear to illustrate an individual's time contribution is equally valuable.



**Figure C.28** SDVF for *Known Level of Activism*

Organizational Principle—Mercenary Motives

*Mercenary Motives* is included as a measure to determine whether monetary gain is the primary goal of the individual's support of the organizational principles. According to SMEs, an individual supporting the purpose of the organization simply for monetary gain is as committed to profit more than the goals of the organization and may potentially be more easily influenced with the prospect of receiving money from outsiders. The SDVF and categorical scoring for *Mercenary Motives* are given in Figure C.29 and Table C.21, respectively.



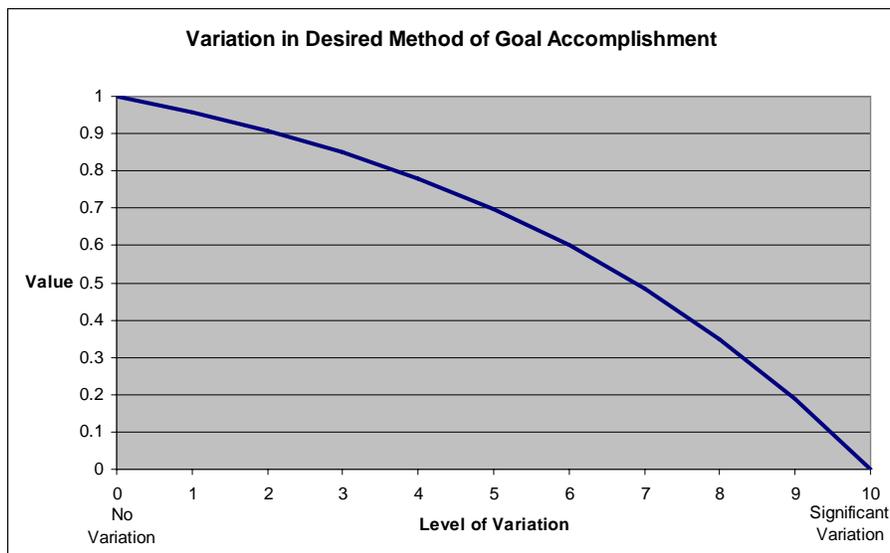
**Figure C.29** SDVF for *Mercenary Motives*

**Table C.21** Categorical Scoring for *Mercenary Motives*

Mercenary Motives	Value
No	1
Yes	0

Organizational Principle—Variation in Desired Method of Goal Accomplishment

This proxy measure attempts to capture the individual’s demonstrated commitment to the principles of the organization versus the organization itself. For example, a violent extremist who belongs to a moderate organization advocating the ouster of a government by direct action, but without the use of violent means would potentially be less committed. This measure is scored with a decreasing exponential SDVF, illustrated in Figure C.30. An individual will be considered more committed if there is little variation exhibited in how to accomplish the goals of the organization. Due to the specificity of this measure, SMEs will be used for scoring whenever possible.



**Figure C.30 SDVF for** *Variation in Desired Method of Goal Accomplishment*

## *Appendix D: Glossary*

<b><u>Significant Term</u></b>	<b><u>Definition</u></b>
<b>Activism</b>	A doctrine or practice that emphasizes direct vigorous action especially in support of or opposition to one side of a controversial issue [Merriam-Webster's Collegiate Dictionary, 2006]
<b>Affective Commitment</b>	An individual's "emotional attachment to, identification with, and involvement in the organization" or supporting a cause; <i>want to commitment</i> [Meyer and Allen, 1991:67]
<b>Clan</b>	A group of people tracing descent from the common ancestry of the individual; a group united by a common interest or common characteristics; extended family
<b>Clandestine Group</b>	A group that operates in secrecy to accomplish its goals [Erickson, 1981:189]
<b>Cohesion</b>	The ability of a group to maintain membership and accomplish its goals; <i>Group characteristic</i>
<b>Collective Identity</b>	"An individual's cognitive, moral, and emotional connection with a broader community, category, practice, or institution" [Polletta and Jasper, 2001:285]
<b>Commitment</b>	The dedication of an individual to the members of their primary group, their organization, and the principles of that organization; <i>Individual attribute</i>
<b>Commitment to Organization</b>	The bond capturing the individual's allegiance to the entire organization beyond their primary group [Piper, <i>et al</i> , 1983:103]
<b>Commitment to Organizational Principles</b>	The commitment of the individual to the goals, visions, priorities, and purpose of the group.
<b>Commitment to Primary Group</b>	Horizontal commitment that exist between an individual and their peers shown by trust, confidence, and teamwork
<b>Continuance Commitment</b>	An individual's "awareness of the costs associated with leaving the organization" or discontinuing their support of a cause; <i>need to commitment</i> [Meyer and Allen, 1991:67]
<b>Fissure</b>	A narrow opening or crack of considerable length and depth usually occurring from breaking or parting [Merriam-Webster Collegiate Dictionary, 2006]
<b>Group</b>	Exists when two or more people define themselves as members of it and when its existence is recognized by at least one other [Brown, 2000]; A number of individuals assembled together or having some unifying relationship [Merriam-Webster Collegiate Dictionary, 2006]
<b>Group Norm</b>	Standards and attitude of the group which direct their behavior; These standards may be formal or informal, written or passed on through example [Davis, 1969]

<b>Influence operations</b>	The integrated planning, employment, and assessment of military capabilities to achieve desired effects across the cognitive targeting domain in support of operational objectives. Influence ops employ capabilities that affect behaviors, protect operations, communicate commander's intent, and project accurate information to achieve desired effects across the cognitive targeting domain [AFDD 2-5, 2005:9; Information Operations CONOP, 2004:5]
<b>Immediately Family</b>	The members in the organization that are related to and/or sharing a common dwelling with the individual being evaluated [Merriam-Webster Collegiate Dictionary, 2006]
<b>Individual Commitment to a Clandestine Group</b>	The dedication of an individual to the members of their primary group, their specific organization, and the purpose of that organization.
<b>Kin</b>	<i>synonymous with Immediate Family</i>
<b>Narco-Terrorism</b>	The use of drug trafficking to advance the objectives of [...] terrorist organizations [Hoffman, 1998:27]
<b>Normative Commitment</b>	An individual's feeling of moral obligation to remain in the organization or continue to their support a cause; <i>ought to commitment</i> [Meyer and Allen, 1991:67]
<b>Organization</b>	An association or society made of smaller groups joined together for a common goal
<b>Organizational Commitment</b>	A psychological state that (a) characterizes the employee's relationship with the organization and (b) has implications for the decision to continue membership in the organization; <i>need to commitment</i> [Meyer and Allen, 1991:67]
<b>Organizational Principles</b>	Purpose of the organization, including its goals, visions, priorities and cause
<b>Physiological Needs</b>	"Physiological needs are the most proponent of all needs. What this means specifically is that in the human being who is missing everything in life in an extreme fashion, it most likely that the major motivation would be the physiological needs rather than any others. A person who is lacking food, safety, love, and esteem would most probably hunger for food more strongly than anything else." [Maslow, 1954:82]
<b>Primary Group</b>	A small group within the organization characterized by the individual's association and cooperation
<b>Susceptible (adj)</b>	Open or subject to influence; impressionable; Susceptibility (n) [Merriam-Webster Collegiate Dictionary, 2006]
<b>Terrorist Extremists</b>	An extremist that uses terrorism – the purposeful targeting of ordinary people – to produce fear to coerce or intimidate governments or societies in the pursuit of political, religious, or ideological goals [National Military Strategic Plan for the War on Terrorism, 2006]
<b>Tribe</b>	Members of the individual's community or village
<b>Vulnerable (adj)</b>	Capable of being physically wounded; open to attack or damage; Vulnerability (n) [Merriam-Webster Collegiate Dictionary, 2006]





## ***Bibliography***

- “Air Force Basic Doctrine.” *Air Force Doctrine Document 1*. 17 November 2003. [http://www.dtic.mil/doctrine/jel/service\\_pubs/afdd1.pdf](http://www.dtic.mil/doctrine/jel/service_pubs/afdd1.pdf). Internet Accessed: 20 October 2005.
- Alderfer, Clayton P. *Existence, Relatedness, and Growth: Human Needs in Organizational Setting*. New York: The Free Press. 1972.
- Allen, Natalie J. and John P. Meyer. “The Measurement and Antecedents of Affective, Continuance, and Normative Commitment to the Organization.” *Journal of Occupational Psychology*. 1990. vol. 63, p 1-18.
- Anonymous. *Through Our Enemies’ Eyes: Osama bin Laden, Radical Islam and the Future of America*. Brassey’s Inc: Washington, D.C., 2002.
- Bartone, Paul T., Bjørn Helge Johnson, Jarle Eid, Wibecke Brun, and Jon C Laberg. “Factors Influencing Small-Unit Cohesion in Norwegian Navy Officer Cadets.” *Military Psychology*. 2002. vol. 14, 1, p 1-22.
- Bohde, Stephanie. “The Underground Railroad Quilt Code: A History of African-American Quilting from Ancient Practices to the Civil War Times.” *The Oakland Journal*. Spring 2005. p 70-79.
- “BrainyQuote: Benjamin Franklin Quotes.” 2006. <http://www.brainyquote.com/quotes/quotes/b/benjaminfr151597.html>. Accessed 1 February 2006.
- “BrainyQuote: Jim Rohn Quotes.” 2006. <http://www.brainyquote.com/quotes/quotes/j/jimrohn147502.html>. Accessed 1 February 2006.
- “BrainyQuote: Johann Wolfgang von Goethe Quotes.” 2006. <http://www.brainyquote.com/quotes/quotes/j/johannwolf161315.html>. Accessed 1 February 2006.
- Braver, Sandford L. “Social Contracts and the Provision of Public Goods.” in *Social Dilemmas: Perspectives on Individuals and Groups*. ed. David A. Schroeder. Westport, Conn.: Praeger. 1995. p 69-86.
- Cartwright, D. “The Nature of Group Cohesiveness.” *Group Dynamics Research and Theory*. eds. D. Cartwright and A Zander. New York: Harper and Row. 1968.
- Cartwright, D. and A. Zander. *Group Dynamics*. Evanston, IL: Row, Peterson and Co. 1953.

- Chamberlin, John. "A Provision of Collective goods as a Function of Group Size." *American Political Science Review*. 1974. vol. 68, p 707-716.
- Clark, Clinton. "Modeling and Analysis of Clandestine Networks." Air Force Institute of Technology MS Thesis. 2005.
- Clausewitz, Carl von. *On War*. ed. Howard, Michael and Peter Paret. Princeton University Press: Princeton, NJ. 1976.
- Clemen, Robert T. and Reilly, Terence. *Making Hard Decision with Decision Tools*. Pacific Grove, CA: Duxbury. 2001.
- Corner, James L. and Craig W. Kirkwood. "Decision Analysis Applications in the Operations Research Literature, 1970-1989." *Operations Research*. March-April 1991. vol. 39, 2, p 206-291.
- Curphy, Gordon J., Richard L. Hughes, and Robert C. Ginnett. *Leadership*. Homewood: Irwin, 1993.
- Davis, James H. *Group Performance*. Reading, MA: Addison-Wesley Publishing Co. 1969.
- "Department of Defense Dictionary of Military and Associated Terms." *Joint Publication 1-02*. 12 April 2001 (Amended through 31 August 2005). [http://www.dtic.mil/doctrine/jel/new\\_pubs/jp1\\_02.pdf](http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf). Internet Accessed: 20 November 2005.
- Deutsch, Morton. "Field Theory in Social Psychology." in *The Handbook of Social Psychology, Second Edition*. ed. Gardner Lindzey and Elliot Aronson. Reading, MA.: Addison-Wesley Publishing Company. 1954. p 412-478
- Driscoll, Susie. "The Psychological Motivation and Socialisation of Suicide Bombers." Unclassified. Presented 13 October 2005 via Video Teleconference at the National Air and Space Intelligence Center.
- Erickson, Bonnie H. "Secret Societies and Social Structure." *Social Forces*. 1981. vol. 60, 1, p 188-210.
- Evans, Nancy and Paul Jarvis. "Group Cohesion: A Review and Reevaluation." *Small Group Behavior*. November 1980. vol. 11, p 359-370.
- Fatur, Roy P. "Influencing Transnational Terrorist Organizations: Using Influence Nets to Prioritize Factors." AFIT Graduate Research Project. June 2005.
- Festinger, L., S. Schachter, K. Back. *Social Pressures in Informal Groups*. Stanford, CA: Stanford University Press. 1950.

- Friedkin, Noah E. "Social Cohesion." *Annual Review of Sociology*. 2004. vol. 30, p 409-425.
- Forster, Peter M. "The Psychology of Terror—The Mind of the Terrorist." 2001. [http://www.blue-oceans.com/psychology/terror\\_psych.html](http://www.blue-oceans.com/psychology/terror_psych.html). Internet Accessed: 26 September 2005.
- Gade, Paul A. "Organizational Commitment in the Military: An Overview." *Military Psychology*. 2003. vol. 15, 3, p 163-166.
- Griffith, James. "Measurement of Group Cohesion in US Army Units." *Basic and Applied Social Psychology*. 1988. vol. 9, p 149-171.
- Griffith, James. "Multilevel Analysis of Cohesion's Relation to Stress, Well-Being, Identification, Disintegration, and Perceived combat Readiness." *Military Psychology*. vol. 14, 3, p 217-239.
- Gruen, Walter. "A Contribution Toward Understanding of Cohesiveness in Small Groups." *Psychological Reports*. 1965. vol. 17, p 311-322.
- Hamill, Jonathan Todd. "Modeling Information Assurance: A Value-Focused Thinking Approach." Air Force Institute of Technology MS Thesis. 2000.
- Henderson, William D. "Cohesion, The Human Element in Combat: Leadership and Societal Influence in the Armies of the Soviet Union, the United States, North Vietnam, and Israel." Washington, D.C.: National Defense University Press, 1985.
- Henzel, Christopher. "The Origins of al-Qaeda's Ideology: Implications for US Strategy." *Parameters, US Army War College Quarterly*. Spring, 2005. p 69-80.
- Hoffman, Bruce. *Inside Terrorism*. Columbia University Press: New York. 1998.
- Hughes, Richard L., Robert C. Ginnett, and Gordon J. Curphy. *Leadership: Enhancing the Lessons of Experience*. Boston, Mass.: McGraw-Hill. 2002.
- "Information Operations." *Air Force Doctrine Document 2-5*. 11 January 2005. [http://www.dtic.mil/doctrine/jel/service\\_pubs/afdd2\\_5.pdf](http://www.dtic.mil/doctrine/jel/service_pubs/afdd2_5.pdf). Internet Accessed: 11 November 2005.
- Keeney, Ralph L. *Value-Focused Thinking: A Path to Creative Decisionmaking*. Harvard University Press: Cambridge, MA. 1992.
- Keeney, Ralph L. "Creativity in Decision making with Value-Focused Thinking." *Sloan Management Review*. Summer 1994. vol. 35, 4, p 33-41.

- Keeney, Ralph L. "Using Values in Operations Research." *Operations Research*. 1994. vol. 42, p 793-813.
- Keeney, Ralph L. and Howard Raiffa. *Decisions with Multiple Objectives*. Cambridge University Press. 1993.
- Kirkwood, Craig W. *Strategic Decision Making: Multiobjective Decision Analysis with Spreadsheets*. Wadsworth Publishing Company: Belmont, CA. 1997.
- Klein, Stuart M. *Workers Under Stress: The Impact of Work Pressure on Group Cohesion*. Lexington, KY: University Press of Kentucky. 1971.
- Krebs, Vladis E. "Mapping Networks of Terrorist Cells." *Connections*. vol. 24, 3, p 43-52.
- Laka-Mathebula, Mmakgomo Roseline. "Modeling the Relationship Between Organizational Commitment, Leadership Style, Human Resource Management Practices, and Organizational Trust." University of Pretoria, Doctor of Philosophy Dissertation. 2004.
- Life Application Study Bible*. New International Version Translation. Wheaton, IL: Tyndale House Publishers and Grand Rapids, MI: Zondervan Publishing House. 2005.
- Lott, Bernice Eisman. "Group Cohesiveness: A Learning Phenomenon." *Journal of Social Psychology*. 1960. vol. 55, p 275-286.
- Maslow, Abram H. *Motivation and Personality*. New York: Harper and Brothers. 1954.
- McBreen, Brendan B. "Improving Unit Cohesion: The First Step in Improving Marine Corps Infantry Battalion Capabilities." Marine Corps National Fellowship Program, MS Thesis. 23 May 2002.
- McCauley, Clark. "Psychological Issues in Understanding Terrorism and the Response to Terrorism." in *Psychology of Terrorism, Condensed Edition: Coping with the Continuing Threat*. ed. by Chris E. Stout. Westport, Conn.: Praeger Publishers. 2004. p 33-66.
- Meyer, John P. and Natalie J. Allen. "A Three-Component Conceptualization of Organizational Commitment." *Human Resource Management*. 1991. vol. 1, p 61-89.
- Meyer, John P. and Lynne Herscovitch. "Commitment in the Workplace: Toward a General Model." *Human Resource Management Review*. 2001. vol. 11, p 299-326.

- Meyer, John P., David J. Stanley, Lynne Herscovitch, and Laryssa Topolnytsky. "Affective, Continuance, and Normative Commitment to the Organization: A Meta-Analysis of Antecedent, Correlates, and Consequences." *Journal of Vocational Behavior*. 2002. vol. 61, p 20-52.
- Mir, Hamid. "Usama bin Laden: Interview with "Dawn" and "Ausaf." Karachi, Pakistan. *The DAWN Group of Newspapers*. 9 November 2001. [http://www.robert-fisk.com/usama\\_interview\\_hamid\\_mir\\_ausaf.htm](http://www.robert-fisk.com/usama_interview_hamid_mir_ausaf.htm). Internet Accessed: 4 October 2005.
- Moody, James and Douglas R. White. "Social Cohesion and Embeddedness." *American Sociological Review*. 2003. vol. 68, p 103-127.
- Mowday, R. T., Porter, L. W., and Steers, R. *Organizational Linkages: The Psychology of Commitment, Absenteeism, and Turnover*. San Diego, CA: Academic Press. 1982.
- Mullen, Brian and Carolyn Cooper. "The Relation Between Group Cohesiveness and Performance: An Integration." *US Army Research Institute for the Behavioral and Social Sciences*. February 1995.
- "National Military Strategic Plan for the War on Terrorism." Chairman of the Joint Chiefs of Staff. Washington, D.C. 1 February 2006. <http://www.defenselink.mil/qdr/docs/2005-01-25-Strategic-Plan.pdf>. Internet Accessed 20 February 2006.
- "National Strategy for Combating Terrorism." February 2003. [http://www.whitehouse.gov/news/releases/2003/02/counter\\_terrorism/counter\\_terrorism\\_strategy.pdf](http://www.whitehouse.gov/news/releases/2003/02/counter_terrorism/counter_terrorism_strategy.pdf). Internet Accessed: 4 October 2005.
- Olson, Mancur. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge, MA: Harvard University Press. 1965.
- Piper, William E., Myriam Marrache, Renee Lacroiz, Astrid M. Richardsen, and Barry D. Jones. "Cohesion as a Basic Bond in Groups." *Human Relations*. 1983. vol. 36, p 93-108.
- Polletta, Francesca and James M. Jasper. "Collective Identity and Social Movements." *Annual Review of Sociology*. 2001. vol. 27, p 283-305.
- Post, Jerold M. "Chapter 2: Killing In the Name of God: Osama Bin Laden and al Qaeda." *Know thy Enemy: Profiles of Adversary Leaders and Their Strategic Cultures*. ed. Schneider, Barry R. and Jerrold M. Post. USAF Counterproliferation Center. Maxwell Air Force Base, AL. July 2003.

- Record, Jeff. "Bounding the Global War on Terrorism." December 2003. Strategic Studies Institute of the US Army War College. [http://www.globalsecurity.org/military/library/report/2003/record\\_bounding.pdf](http://www.globalsecurity.org/military/library/report/2003/record_bounding.pdf). Internet Accessed: 4 October 2005.
- Renfro, Robert S. II. *Modeling and Analysis of Social Networks* Dissertation (Ph.D.)—Air Force Institute of Technology, 2001.
- Runaway Jury. Dir. Gary Fleder. Perf. John Cusack, Gene Hackman, Dustin Hoffman, and Rachel Weisz. Aaron Milchan, Gary Fleder, Chistopher Mankiewicz, 2003.
- Sageman, Marc. *Understanding Terror Networks*. University of Pennsylvania Press, 2004.
- Schachter, Stanley, Norris Ellertson, Dorothy McBride, and Doris Gregory. "An Experimental Study of Cohesiveness and Productivity." *Human Relations*. 1951. vol. 4, p 229-238.
- Scholl, Richard W. "Differentiating Organizational Commitment From Expectancy as a Motivating Force." *Academy of Management Science*. 1981. vol. 6, 4, p 589-599.
- Simmel, Georg. "The Sociology of Secrecy and Secret Societies." *American Journal of Sociology*. 1906. vol. 11, p 441-498.
- Smith, James M. "Air Force Culture and Cohesion: Building an Air and Space Force for the Twenty-First Century." *Airpower Journal*. Fall 1998, p 40-53.
- Sparrow, Malcolm. "The Application of Network Analysis to Criminal Intelligence: An Assessment of the Prospects." *Social Networks*. 1991. vol. 13, p 251-274.
- Sper, Mary K. "Towards Understanding Terrorism: A Theoretical Examination of Internal Cohesion in Terrorist Groups and the Negative Dynamic of Violence." Naval Postgraduate School MS Thesis. March 1995.
- Stewart, Nora Kinzer. *Mates & Muchachos: Unit Cohesion in the Falklands/Malvinas War*. Washington, D.C: Brassey's, Inc. 1991.
- Stout, Chris E. "Using Psychology to Counter Terrorism at the Personal and Community Level." in *Psychology of Terrorism, Condensed Edition: Coping with the Continuing Threat*. ed. by Chris E. Stout. Westport, Conn.: Praeger Publishers. 2004. p 1-31.
- Stubbs, Richard. *Hearts and Minds in Guerrilla Warfare: The Malayan Emergency: 1948-1960*. Eastern University Press: Singapore. 2004.
- Sun Tzu. *The Art of War*. London: Oxford Press. 1963.

- Taylor, Maxwell. *The Terrorist*. London: Brassey's Defence Publishers. 1988.
- Tremble Jr., Trueman R., Stephanie C. Payne, John F. Finch, and R. Craig Bullis. "Opening Organizational Archives to Research: Analog Measures of Organizational Commitment." *Military Psychology*. 2003. vol. 15, 3, p 167-190.
- Turner, John C., Michael A. Hogg, Penelope J. Oakes, Stephen D. Reicher, and Margaret S. Wetherell. *Rediscovering the Social Group: A Self-Categorization Theory*. New York, NY: Basil Blackwell. 1987.
- van Bergen, Annie and J. Koekebakker. "Group Cohesiveness in Laboratory Experiments." *Acta Psychologica*. 1959. vol. 16, p 81-98.
- Weimann, Gabriel. "www.terror.net: How Modern Terrorism Uses the Internet." *United States Institute of Peace, Special Report*. March 2004. <http://www.usip.org/pubs/specialreports/sr116.pdf>. Internet Accessed: 13 February 2006.
- Wiener, Yoash. "Commitment in organizations: A normative view." *Academy of Management Review*. July 1982. vol. 7, p 418-428.
- Wolman, Benjamin. "Impact of Failure on Group Cohesiveness." *Journal of Social Psychology*. vol. 51, p 409-418.
- Wong, Frederick. "A Formula for Building Cohesion." *US Army War College*. 30 April 1985.
- Wong, Leonard, Col Thomas A. Kolditz, LtCol Raymond A. Millien and Col Terrence M Potter. "Why They Fight: Combat Motivation in the Iraq War." *The US Army War College*. July 2003.

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 074-0188	
<p>The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</p> <p><b>PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.</b></p>					
1. REPORT DATE (DD-MM-YYYY) 16-03-2006		2. REPORT TYPE Master's Thesis		3. DATES COVERED (From – To) August 2004-March 2006	
4. TITLE AND SUBTITLE  Evaluating the Commitment of Clandestine Group Members				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)  Downs, Doneda D., 2 <sup>nd</sup> Lieutenant, USAF				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAMES(S) AND ADDRESS(S) Air Force Institute of Technology Graduate School of Engineering and Management (AFIT/EN) 2950 Hobson Street, Building 642 WPAFB OH 45433-7765				8. PERFORMING ORGANIZATION REPORT NUMBER  AFIT/GOR/ENS/06-06	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Maj Timothy Gameros Cognitive Systems Branch, AFRL/HECS 2689 G Street Wright-Patterson AFB OH 45433-7022				10. SPONSOR/MONITOR'S ACRONYM(S)  AFRL/HECS; NASIC/FCEB	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT  APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT <p>Since the attacks of September 11<sup>th</sup>, 2001, there has been a great deal of attention given to understanding the inner workings of terrorist organizations in order for the United States to be successful in the Global War on Terrorism. Group dynamics has been one area of interest pursued to gain more insight into a terrorist's cognitive battlespace. Until a few years ago, most research on individual commitment and organizational cohesion has been based primarily on questionnaires and open observations on groups that desire to be understood. However, terrorist organizations are clandestine; they constantly employ operations security (OPSEC) to ensure protection and mission accomplishment.</p> <p>This thesis uses Decision Analysis principles, specifically a Value-Focused Thinking-like approach, to develop an initial hierarchical model of significant factors influencing an individual's commitment to a terrorist organization, or any clandestine group of violent extremists. Individuals are evaluated and scored according to the model to identify exploitable vulnerabilities in their commitment level. This information is then used to identify fissures of the entire organization that can be used to diminish the cohesion of the group.</p>					
15. SUBJECT TERMS Clandestine Groups, Decision Analysis, Value-Focused Thinking (VFT), Individual Commitment, Group Cohesion, Organizational Theory, Group Dynamics					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Dr. Richard F. Deckro, Professor of Operations Research, (ENS)
U	U	U	UU	152	19b. TELEPHONE NUMBER (Include area code) (937) 255-6565, ext 4325; e-mail: Richard.Deckro@afit.edu