

United States Army Aviation Organizational Changes

**A Monograph
by
Major David Law
United States Army**



**School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas**

AY 2012-002

REPORT DOCUMENTATION PAGE				<i>Form Approved</i> <i>OMB No. 0704-0188</i>	
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 this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to 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 any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 06-12-2012		2. REPORT TYPE Master's Thesis		3. DATES COVERED (From - To) JAN 2012 – DEC 2012	
4. TITLE AND SUBTITLE United States Army Aviation Organizational Changes				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Major David Law				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) School of Advanced Military Studies ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301				8. PERFORMING ORG REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT <p>The primary goal of this study is to determine the factors which led to organizational changes in U.S. Army Aviation helicopters. The study of the changes in force structure in Army Aviation is historically important. While Army Aviation should develop their organizational structure based on future requirements, the past often provides insights for a vision for the future. The methodology consists of a comparison of the Army Aviation organizational structures over a period of time from 1950 to 2010 highlighting the changes in the organization of helicopters. In order to be as broad and thorough in the analysis as possible, case study analysis consists of 10-year increments from 1950 to 2010.</p> <p>Conflict episodes, doctrine, technology, budget constraints, and existential threats are common variables that most people would consider led to Army Aviation organizational changes. The analysis of this monograph explains that conflict episodes are the major factor that led to those changes. Conflict episodes most often force changes in formal/informal doctrine as well as technology.</p>					
15. SUBJECT TERMS Army Aviation, organizational changes, organizational structure, helicopters					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. PHONE NUMBER (include area code)
(U)	(U)	(U)	(U)	66	

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major David Law

Title of Monograph: United States Army Aviation Organizational Changes

Approved by:

Michael D. Mihalka, Ph.D. Monograph Director

Christopher C. LaNeve, COL, IN Second Reader

Thomas C. Graves, COL, IN Director,
School of Advanced
Military Studies

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

Disclaimer: Opinions, conclusions, and recommendations expressed or implied within are solely those of the author, and do not represent the views of the US Army School of Advanced Military Studies, the US Army Command and General Staff College, the United States Army, the Department of Defense, or any other US government agency. Cleared for public release: distribution unlimited.

Abstract

United States Army Aviation Organizational Changes by Major David Law, USA, 66 pages.

The primary goal of this study is to determine the factors which led to organizational changes in U.S. Army Aviation helicopters. The study of the changes in force structure in Army Aviation is historically important. While Army Aviation should develop their organizational structure based on future requirements, the past often provides insights for a vision for the future. The methodology consists of a comparison of the Army Aviation organizational structures over a period of time from 1950 to 2010 highlighting the changes in the organization of helicopters. In order to be as broad and thorough in the analysis as possible, case study analysis consists of 10-year increments from 1950 to 2010.

Conflict episodes, doctrine, technology, budget constraints, and existential threats are common variables that most people would consider led to Army Aviation organizational changes. The analysis of this monograph explains that conflict episodes are the major factor that led to those changes. Conflict episodes most often force changes in formal/informal doctrine as well as technology. Unlike the other variables, the Cold War is a singular event in U.S. history that influenced Army Aviation organizations and the U.S. Military from 1960 to 2000.

Table of Contents

	Page
Table of Contents	v
Acronyms	vi
Illustrations	vii
Tables	viii
Introduction	1
Organizational Background.....	2
Literature Review.....	5
Methodology	11
Case Studies	15
Analysis: 1950-1960	15
Analysis: 1960-1970	20
Analysis: 1970-1980	26
Analysis: 1980-1990	36
Analysis: 1990-2000	42
Analysis: 2000-2010	47
Conclusions	51
Bibliography.....	57

Acronyms

AAMP	Army Aviation Modernization Plan
AOE	Army of Excellence
ARCSEA	Aviation Requirements for the Combat Structure of the Army
ARI	Aviation Restructure Initiative
CAB	Combat Aviation Brigades
CSAC	Combat Support Aviation Companies
LHX	Light Helicopter Experimental
UTTHCO	Utility Tactical Transport Helicopter Company

Illustrations

	Page
Figure 1. Aviation Units in the 1st Cavalry Division (Airmobile) in 1965.....	23
Figure 2. 1st Aviation Brigade Organization, 1 August 1968.....	24
Figure 3. First Attack Helicopter Company (1970).....	28
Figure 4. Experimental Attack Aviation Company.....	30
Figure 5. ARCSA III Armored/Mechanized Division Aviation Organizations.....	33
Figure 6. ARCSA III Infantry/Airborne Division Aviation Organizations.....	34
Figure 7. Divisional Aviation Brigade based on ARCSA IV study.....	37

Tables

	Page
Table 1. Type and Number of Aviation Units Assigned under the AOE Design	38
Table 2. Number of Attack/Recon Helicopters in Combat Aviation Units under the AOE Design	38
Table 3. Number of Transport Helicopters in Combat Aviation Units under the AOE Design	39
Table 4. Changes in Overall Helicopter Requirements from the ARI Design	44
Table 5. Type and Number of Aviation Units Assigned under the ARI Design.....	44
Table 6. Number of Aviation Units under the AOE and ARI Design	45
Table 7. Differences of AOE and ARI design for Combat Aviation Units.....	45
Table 8. Difference of AOE and ARI design for Transport and Support Aviation Units.....	46
Table 9 Results of Analysis of Factors that Led to Aviation Organizational Changes.....	52

Introduction

[T]he helicopter has made possible the greatest breakthrough in tactical mobility since . . . an armed vehicle.¹

— William C. Westmoreland

Since the American Civil War, Army Aviation adopted two diametrically discrete organizational structures—one focused on a separate organization, the other focused on inclusion to other Army Branches. The Army created a separate, specialized organization focused on aviation in the Balloon Corps, the Air Service, the Air Corps, the Army Air Forces, and the Aviation Branch.² The Army also put aviation people and technology into existing branches of the Army.³ Aviation was first integrated within the Signal Corps in order to provide reconnaissance and communications. Subsequently, in 1942, the War Department created organic Army Aviation within the Artillery Branch to provide observation and fire adjustment. This approach of having aviation integrated within existing organizations continued until 1983 when the current Aviation Branch was created.⁴

The study of the changes in force structure in Army Aviation is historically important. While Army Aviation should develop their organizational structure based on future requirements, the past often provides insights for a vision for the future. A historical analysis of the changes in force structure in Army Aviation will provide insight on the factors that suggest organizational changes in Army Aviation. Most importantly, understanding the factors that changed the

¹William C. Westmoreland, “Honoring Army Aviators” (Address given at the Army Aviation Association of America Annual Meeting, Washington, DC, 1 November 1968), 1, in William C. Westmoreland, “Addresses by General William C. Westmoreland,” Chief of Staff, United States Army, vol. 1, 3 July 1968 to 28 January 1969, Washington, DC.

²James W. Williams, *A History of Army Aviation, from its Beginnings to the War on Terror* (New York: iUniverse, 2005), 423.

³Ibid.

⁴Ibid.

organization of Army Aviation in the past will help ensure that the Army is adapting for the right reasons in the future.

Army Aviation is at an important junction. Similar to the events after major conflicts in American history such as Desert Storm and the Vietnam War, the organizational structure of Army Aviation will likely continue to change in the future based on federal budget constraints and what has occurred during Operation Iraqi Freedom/New Dawn and Operation Enduring Freedom. Studying the relationships between the factors that cause organizational changes in Army Aviation may also result in increased understanding needed to properly shape the continuing future of Army Aviation.

The research is organized as follows: First, a literature review will discuss the development of helicopters in relation to organizational changes within Army Aviation. The literature review will distill arguments concerning what experts identify as the prominent factors that led to organizational changes in Army Aviation. Furthermore, the literature review will identify the variables that will be analyzed in the case studies. Second is the paper's research methodology, discussing the case study selection and providing the scheme for measuring the theoretical variables analyzed. Third is the analysis section, examining the factors that caused organizational changes in helicopters through the case study selection identified in the research methodology. The study concludes with a summary of the main points of the argument and key conclusions.

Organizational Background

The modern United States Army Aviation was born a few months after the U.S. entered into World War II on 6 June 1942. Organic Army Aviation's entry into combat was part of the first major offensive the U.S. conducted in World War II.⁵ At the conclusion of World War II, the

⁵James W. Bradin, *From Hot Air to Hellfire: The History of Army Attack Aviation* (Novato, CA: Presidio, 1994), 70.

results of organic Army Aviation had convinced the ground commanders of a continuing need for it. These positive assessments set the stage for retaining organic Army Aviation and achieving its independence from the Army Air Force in 1947.⁶

During the interim period between World War II and the Korea War, there was a great awakening of interest in the helicopter. The approval of the National Defense Act of 1947 established the United States Air Force.⁷ The Air Force's independence from the Army had profound effects on the Army as a whole and especially Army Aviation. The largest concern the Army had with the Air Force was their interests towards participation in tactical missions. The Air Force simply was not interested in participating in tactical missions in support of ground commanders.⁸ This neglect spurred the Army to provide its own aviation support.

The National Defense Act of 1947 and subsequent Key West Agreement signed in 1948 set clear regulations for the both the Army and the Air Force. The Air Force's role was to furnish close combat and logistical air support to the Army to include aerial photography, tactical reconnaissance, airlift, support, resupply of airborne operations, and interdiction of enemy land power and communications. The Army's role was to expedite and facilitate the conduct of operations on land, improve mobility, command, control, logistics support of Army forces, and to facilitate greater battlefield dispersion and maneuverability under conditions of atomic warfare.⁹ In addition, the Army could not infringe on any of the roles of the Air Force.

The Korean War was largely significant for Army Aviation for several reasons. The war emphasized the need for a dedicated helicopter capable of conducting medical evacuation. Use of helicopters in the Korea War suggested a much larger potential for battlefield maneuvers. The

⁶Williams, *A History of Army Aviation*, 423.

⁷Howard A. Wheeler, *Attack Helicopters: A History of Rotary-Wing Combat Aircraft* (Baltimore, MD: Nautical and Aviation Publication Co. of America, 1987), 73.

⁸Williams, *A History of Army Aviation*, 49.

⁹Wheeler, *Attack Helicopters*, 75-76.

Korean War also showed failings in both helicopter technology and within the helicopter industry. More importantly, the Korean War repeated the same patterns of neglect to ground support by the Air Force that led to Army Aviation in 1942.¹⁰ Overall, conditions in Korea resulted in the Army leadership's strong support for expanded use of Army Aviation, with particular emphasis on employing helicopters in combat.

The Vietnam War was a watershed moment for Army Aviation because it was the spark that caused a virtual explosion in the usage of combat helicopters. The number of Army aircraft in Vietnam grew from a few transport helicopters to approximately 4000 rotary and fixed wing aircraft by 1971.¹¹ The basic roles of helicopters in Vietnam grew to include troop lift, aerial fire support, reconnaissance, logistical support, and gunship operations. Vietnam was the stage in which the first helicopter gunship was introduced, the AH-1 Cobra. Two important tactical lessons learned from Vietnam were the usage of air assault and the vulnerability of the helicopter.¹²

After much dispute, the Secretary of the Army established the Aviation Branch on 12 April 1983.¹³ Some Army leaders opposed the idea due to fears that Army Aviation would abandon the ground forces and become increasingly independent as the Army Air Corps did earlier. However, during the war in Southeast Asia, Army Aviation integrated successfully as a member of the Combined Arms Team. Consequently, most senior leaders thought that there was no danger of Army Aviation leaving the rest of the Army behind and becoming an independent

¹⁰Williams, *A History of Army Aviation*, 52.

¹¹Wheeler, *Attack Helicopters*, 58.

¹²John Everett-Heath, *Helicopters in Combat: The First Fifty Years* (London: Arms and Armor, 1992), 219.

¹³United States Army Aviation, "We're a Branch!," *U.S. Army Aviation Digest* 29, no. 4 (April 1983), 42; U.S. Department of the Army, *General Orders No. 6* (Washington, DC: Department of the Army, 15 February 1984), <http://www.history.army.mil/documents/misc/dago6-84.htm> (accessed 12 August 2012).

organization. Furthermore, as aviation technology and tactics became more complex, it became apparent to senior leaders in the Army that Army Aviation needed its own professional military education. The transition to branch status also allowed Army Aviation to consolidate into one organization with control of its doctrine and equipment.

During the years following Vietnam, Army Aviation engaged in a wide variety of noncombat and combat operations, which transformed the organization in terms of doctrine, organization, training, material, leadership and education, personnel, and facilities. This monograph will examine the organizational changes in Army Aviation. More specifically, this monograph will investigate the factors that led to organizational changes in the U.S. Army Aviation helicopters.

Literature Review

Many professional military and civilian authors have written books concerning the history of the United States Army Aviation. This section seeks to highlight the prevailing literature by discussing the factors that have led to organizational changes in Army Aviation helicopters. The most common factors that authors have directly and indirectly stated that have led to organizational changes in Army Aviation are conflict episodes, budget constraints, doctrine, technology, and existential threats. However, some organizational changes cannot be directly or objectively indirectly linked to a variable other than perhaps the normal evolution of the transformation of organizations in Army Aviation.

Janine Davidson, in her book *Lifting the Fog of Peace*, presents the idea that military organizations have the opportunity to learn through at least three methods: historical examples (of self and others), personal battlefield experience, and the experience of other armies.¹⁴ Furthermore, Davidson states that scholars debate whether the military can change on its own or

¹⁴Janine Davidson, *Lifting the Fog of Peace: How Americans Learned to Fight Modern War* (Ann Arbor, MI: University of Michigan Press, 2010), 9.

in response to perceived threats, new technologies, changes in the global system, or other external factors.¹⁵ Finally, Davidson claims that the military needs external actors to force innovation or change. The military would be unlikely to change if there were no external factors causing it to change.¹⁶

Dr. James W. Williams, in his book *A History of Army Aviation*, presents organizational changes in Army Aviation through examining conflict episodes through the lens of the evolution of Aviation Branch. As crisis causes innovation, conflict episodes create transformation in Army organizations. Dr. Williams stated that the Korean War led to strong support within the Army leadership to expand uses of aviation, especially helicopters.¹⁷ During the Vietnam War, there was a huge increase in the numbers of rotary wing aircraft, and demands for them led to regularly constituted battalions, groups, and even the first Aviation Brigade.¹⁸

John Everett-Heath, in *Helicopters in Combat*, also linked conflict episodes with organizational changes in Army Aviation. During the Vietnam War, an Armed Helicopter Company, named the Utility Tactical Transport Helicopter Company (UTTHCO), was established in Okinawa, Japan in July 1962 to support the deteriorating conditions in South Vietnam.¹⁹ Based on the performance of the UTTHCO during the Vietnam War, helicopter companies were organized into five to seven gunships for every 25 unarmed helicopters.²⁰

New doctrine also leads to changes in aviation organization. According to Colonel (Ret) Jay D. Vanderpool, in *U.S. Army Aviation Digest*, armed and attack helicopters were based on a

¹⁵Ibid., 10.

¹⁶Ibid.

¹⁷Williams, *A History of Army Aviation*, 52.

¹⁸Ibid., 96.

¹⁹Everett-Heath, *Helicopters in Combat*, 70.

²⁰Ibid., 74.

means of suppressive fire to protect assault troops.²¹ The results of Vanderpool's experiments ultimately led to the Aerial Combat Reconnaissance Company that was eventually changed to Troop D (Air), 17th Cavalry.²² The roots of these new aviation formations were from the original doctrine of Vanderpool.

Furthermore, Everett-Heath, in *Helicopters in Combat*, linked doctrine to aviation organizational changes. In 1952, a study was conducted on the concept of airmobility based on the need to match troop mobility with improvements in firepower.²³ It was determined from the study that 12 Helicopter Battalions should be formed as soon as troop-carrying helicopters became available.²⁴ The doctrine for the airmobility concept led to changes in aviation organizations before helicopter technology was developed. However, it is likely that experiences of the Korean War also influenced the creation of the concept of the airmobility doctrine. Consequently, these findings suggest that both doctrine and conflict episodes (such as the Korean War) were factors involved in Army Aviation organizational changes.

Dr. Williams also linked budget constraints to changes in Army Aviation organizations. The Rogers Board, in 1960 established a goal to replace all Army aircraft every 10 years or sooner, if operational conditions or technical opportunities dictated.²⁵ This approach was logical, but did not take into account the budgetary realities during that time. For example, the CH-47 Chinook, which was to be replaced in the 1970s, based on the Rogers Board 10 year replacement aircraft goal, currently has a lifespan projected well into the 21st century.²⁶ Subsequently, after

²¹Colonel (Ret) Jay D. Vanderpool, "We Armed the Helicopter," *U.S Army Aviation Digest*, 17, no. 6 (June 1971): 4.

²²Bradin, *From Hot Air to Hellfire*, 98.

²³Everett-Heath, *Helicopters in Combat*, 21.

²⁴Ibid.

²⁵Williams, *A History of Army Aviation*, 91.

²⁶Ibid.

the Aviation Restructure Initiative (ARI) in the 1990s, continued budgetary pressures led the Army to trade off Aviation modernization and adopt strategies that fielded aircraft below the authorized unit levels, directly affecting the organization of Army Aviation attack/reconnaissance helicopters. In 2004, the Army eliminated the Comanche program in order to free resources for upgrading and acquiring more Blackhawks, Apache Longbows, and Chinooks.²⁷ If the Comanche helicopter had been fielded, then it seems likely that it would also have changed the organizational structure of Army Aviation attack/reconnaissance organizations.

Historically, technology has also led to significant organizational changes in Army Aviation helicopters. The organization of the attack helicopter company went through two major changes from 1973 to 1986. According to Everett-Heath, one of the key changes was caused by the sophisticated air defense systems and the utilization of tanks in the Warsaw Pact countries in the 1970s.²⁸ According to the Aviation Requirements for the Combat Structure of the Army (ARCSA) III study, all attack helicopters would be located in attack helicopter companies and attack helicopter troops in order to better defeat the sophisticated air defense systems.²⁹ Consequently, aviation organizations changed due to the ARCSA III recommendations.

According to the Department of the Army's Table of Organization and Equipment for the Aerial Weapons Company, another example of technology changing doctrine was the introduction of the AH-1G Cobra.³⁰ In 1965, the Huey was not a suitable aircraft because of its low airspeed. Consequently, the Bell helicopter manufactured the AH-1G Cobra. With the arrival of the AH-1G Cobra in September 1967, a new era in armed helicopter operations began.

²⁷Ibid., 328.

²⁸Everett-Heath, *Helicopters in Combat*, 62.

²⁹Major George R. Hall, , Major Russell H. Smith, Major Lewis D. Ray, and Captain Lloyd McCammon, "ARCSA III," *U.S. Army Aviation Digest* 23, no. 7 (July 1977): 2-3, 17.

³⁰Headquarters, U.S. Army Combat Developments Command, Technical Manual 17-387T (Tentative) (Experimental), *Attack Helicopter Company* (Fort Belvoir, VA: Government Printing Office, 1972), 16.

Eventually, in 1970 the first attack helicopter company was organized with the first attack helicopter with either UH-1Cs or AH-1Gs.³¹

The Cold War threat also led to organizational changes in Army Aviation helicopters. The organization of the helicopter went through major changes in the late 1970s due to the expected utilization of tanks in the Warsaw Pact countries. According to Captain Sloniker and Captain Sosnowski in 1976, the 101st Air Assault Division formed the first attack battalion to provide a quick fix to the problem of killing tanks during mid-intensity battles in Europe.³² In addition, the Cold War directly led to the design of Army of Excellence (AOE).³³ The AOE concept made major organizational changes to Army Aviation at the Corps, Division, Armored Cavalry Regiment, and Battalion levels.

The factors that led to changes in Army Aviation organizations are similar to the factors that led to changes to the organization of the United States Army. Conflict episodes and the Cold War threat have both led to major changes in the United States Army. According to the United States Center of Military History, during the Vietnam War, between 1961 and 1964, the Army's strength rose from approximately 850,000 to nearly a million men. Consequently, this changed the organization of the Army from 11 to 16 Combat Divisions.³⁴ The Vietnam War not only increased the conventional warfare organizations of the Army, but also the unconventional

³¹U.S. Department of the Army, Table of Organization and Equipment 17-111, *Attack Helicopter Company* (Washington, DC: Government Printing Office, 15 September 1970), 22, 35.

³²Captain Michael E. Sloniker and Captain Gary R. Sosnowski, "Attack," *U.S. Army Aviation Digest* 22, no. 12 (December 1976): 4.

³³John L. Romjue, *The Army of Excellence: The Development of the 1980s Army* (TRADOC Historical Monograph Series, Fort Monroe, VA, 1993), 2.

³⁴Center of Military History, *The U.S. Army in Vietnam* (Washington, DC: Center of Military History, American Military History, 1989), 629.

warfare organizations. During the Vietnam War, the Special Forces Branch increased from approximately 1500 to 9000 Soldiers, creating additional organizational changes in the Army.³⁵

Budget constraints have not only affected the organization of Army Aviation, but also the United States Army as a whole. According to the Department of Defense *2012 Defense Budget and Choices*, after every major conflict, the U.S. military budget has decreased.³⁶ The total U.S. defense spending will drop by approximately 22 percent from its peak in 2010, from fiscal year 2013 to fiscal year 2017.³⁷ In comparison, the budget decreased in a similar magnitude of approximately 20 percent to 25 percent following the Vietnam and Cold War peak budgets.³⁸ The 22 percent spending decrease for the U.S. military budget reduces the size of the active Army from approximately 570,000 soldiers in 2010 to approximately 490,000 soldiers. This 80,000 soldier decrease translates to the Army planning to remove at least eight Brigade Combat Teams.³⁹

Imagined employment concepts also drove technology and Army Aviation organizational changes. In 1952, the Army conducted a study on the tactical movement of a unit by a helicopter, later identified as the airmobility concept.⁴⁰ A decision was made to form 12 Helicopter Battalions as soon as practical troop-carrying helicopters became available based on the Army study in 1952.⁴¹ Airmobility was first a concept that drove technology and aviation organizational

³⁵Ibid., 630.

³⁶Headquarters, Department of Defense, *Defense Budget Priorities and Choices* (Washington, DC: Government Printing Office, January 2012), 2.

³⁷Ibid.

³⁸Ibid.

³⁹Ibid., 11-12.

⁴⁰Everett-Heath, *Helicopters in Combat*, 21.

⁴¹Ibid.

changes. Furthermore, the concept of a helicopter providing suppressive fire for other helicopters that were transporting units drove technology and aviation organizational changes.⁴²

Conflict episodes, budget constraints, doctrine, technology, and existential threats are some of the primary factors that have led to organizational changes in Army Aviation helicopters. Not all organizational changes can be directly linked to one primary factor. Sometimes aviation organizational changes are caused by a combination of events, and sometimes the primary determinants of organizational change are difficult to identify.

Methodology

The primary goal of this study is to determine the factors which led to organizational changes in U.S. Army Aviation helicopters. Following an analysis of the history of helicopters, it is hypothesized that the data will show that the variables of conflict episodes, doctrine, technology, the Cold War, and budget constraints are factors related to organizational changes in Army Aviation helicopters. The variables of conflict episodes, doctrine, technology, the Cold War, and budget constraints will be examined independently and in combination, in order to determine if they do cause organizational structure changes in Army Aviation helicopters.

The methodology consists of a qualitative methodological design. The topic lends itself primarily to qualitative analysis because it requires subjective analysis of the causes of organizational changes in Army Aviation that are sometimes not very clear. In addition, this is a qualitative analysis because the case studies are not randomly selected, but selected based on a chronological, logical approach to examining the organizational changes in Army Aviation. Lastly, the focus of this qualitative analysis will attempt to identify patterns and themes of factors that led to organizational changes in Army Aviation.

⁴²Vanderpool, "We Armed the Helicopter," 4.

This methodology will include both case study analysis and comparative analysis. Case studies are best utilized if the researcher wants to infer or test explanatory hypotheses.⁴³ It is hypothesized that the data will show that the variables of conflict episodes, doctrine, technology, the Cold War, and budget constraints are factors related to organizational changes. Consequently, it is best to utilize the case study methodology. Comparison of the Army Aviation organizational structures over a period of time from 1950 to 2010 will highlight the changes in the organization of helicopters. In order to be as broad and thorough in the analysis as possible, case study analysis will consist of 10 year increments from 1950 to 2010.

The variables of conflict episodes, doctrine, technology, the Cold War, and budget constraints will be examined in each case study in order to validate or invalidate the hypothesis. The method of difference will be utilized in each case study in order to determine the causal factors that led to Army Aviation organizational changes for each case study. A controlled comparison will be included in the conclusions, observations, and recommendations of this proposed research to explain the changes in Army Aviation and to highlight the uniqueness of each period for each case study.

Historical data, professional journals, and contemporary reviews provide the data for this research. Historical data consists mainly of books that examine Army Aviation's organization changes from the 1950s to the 1980s. Information from professional and academic journals will include data from the *Aviation Digest* from 1955 to 1995 and *Army Aviation*, published by the Army Aviation Association of America. Contemporary reviews will provide information concerning the most recent case study of 2000 to 2010 in the primary context of Operation Enduring Freedom and Operation Iraqi Freedom. All data collected is necessary to gain a proper

⁴³Stephen Van Evera, *Guide to Methods for Students of Political Science* (Ithaca, NY: Cornell University Press, 1997), 136.

historical context and understand what factors led to Army Aviation organizational changes in helicopters.

The causal variables will be operationalized in order to establish some kind of linkage between the data that is collected and the factors in the hypothesis. The factors that led to organizational changes will be measured by a simple method of presence or absence. Each case study will be examined to determine the presence or absence of the factors of conflict episode, technology, and doctrine. Precision in measurement is not a relevant issue for this research because there will only be two values of interest: presence and absence. Reliability of the factors that led to the proximate causes of the Army Aviation organization changes will be based on the source of information and a certain level of objectivity from the author.

Only Army Aviation organizational changes that affected the operational level of war will be discussed in this monograph. Battalion and brigade size Army Aviation organizational changes most often influence the operational level of war. However, there are some company and platoon level organizational changes, especially in the early history of Army Aviation that affected Army Aviation at the organizational level. Consequently, this monograph will at times discuss company and platoon level Army Aviation organizational changes.

This research uses the following definitions:

Aviation Organizational Changes. The creation, inactivation/deactivation, or the evolution (change in number or type of aircraft) of aviation units that influence the operational level of war.

Conflict Episodes. An armed struggle or clash between organized groups within a nation or between nations, in order to achieve limited political or military objectives during a certain period.⁴⁴

⁴⁴U.S. Department of the Army, Field Manual (FM) 1-02, *Operational Terms and Graphics* (Washington, DC: Government Printing Office, 2004), 1-43.

Doctrine. These are fundamental principles by which the military force or elements thereof guide their actions in support of national objectives. It is authoritative, but requires judgment in application.⁴⁵ Formal doctrine, are principles that are endorsed in an official publication of the United States Government. Informal doctrine, are principles that are not endorsed in an official publication of the United States Government. This monograph will consider both formal and informal doctrine in the analysis of factors that led to Army Aviation organizational changes.

Technology. The specific materials or devices used to solve practical problems.⁴⁶

⁴⁵Ibid., 1-65.

⁴⁶Definition is derived from The American Heritage Dictionary, <http://ahdictionary.com/word/search.html?q=technology&submit.x=17&submit.y=13> (accessed 13 August 2012).

Case Studies

The case studies consist of six individual cases of 10 year increments from 1950 to 2010. Each case study will highlight the factors that led to Army Aviation organizational structures during that specific decade. The variables of conflict episodes, doctrine, technology, the Cold War, and budget constraints will be examined in each case study.

Analysis: 1950-1960

The decade of 1950 to 1960 consisted of numerous significant events that led to organizational changes in Army Aviation. The Malayan Emergency and the Korean War were factors that resulted in organizational changes in Army Aviation helicopters. In addition, the new concepts of airmobility and suppressive fire led to organizational changes in Army Aviation helicopters.

The British usage of the helicopter during the Malayan Emergency influenced the Americans' thinking in usage of helicopters in the Korean War that eventually led to Army Aviation organizational changes, especially in the areas of medical evacuation and reconnaissance. Based on the medical evacuation requirements during the Korean War, helicopters in the U.S. were organized into the 1st, 2nd, 3rd, and 4th Helicopter Detachments. These helicopter ambulance detachments were some of the first formal Army Aviation helicopter organizations. The airmobility concept involved the tactical movement of units by a helicopter. A decision was made on 21 August 1952 to form 12 Helicopter Battalions as soon as a capable troop-carrying helicopter was developed.⁴⁷ The suppressive fire concept led to the experimental unit called the "Sky Cav" and it was officially recognized as the 792d Aerial Combat

⁴⁷Everett-Heath, *Helicopters in Combat*, 21.

Reconnaissance Company (Provisional).⁴⁸ This summarizes the changes of Army Aviation organizations during the decade of 1950 to 1960.

The conflict episode of the Malayan Emergency directly influenced organizational changes in U.S. Army Aviation through the introduction of the utility of the helicopter in a myriad of missions, especially the airmobile concept. In the Malayan Emergency, from 1948 to 1960, the British Army used rotary wing aircraft on a large scale and very effectively in order to save Malaya from Communist insurgents.⁴⁹ Even though the American Vietnam War is considered by some as the first helicopter war, it can be argued that the first real helicopter war was the Malayan Emergency due to the large number of helicopters used. The British used the helicopter to overcome the confined jungle terrain isolated from ground transportation.⁵⁰

The primary missions of the helicopter during the Malayan Emergency were troop transport, paratrooper drops, casualty evacuation, reconnaissance, communications, and defoliation.⁵¹ Medical evacuation and reconnaissance were the most critical missions conducted by the helicopters. The most important lesson learned by the U.S. Army Aviation during the Malayan Emergency was that the helicopter was capable of various roles. A precursor to the American airmobile concept during the Vietnam War, during the Malayan Emergency, helicopters transported troops in very small numbers and supplies into the jungle.⁵² The British usage of helicopters during the Malayan Emergency influenced the Americans' thinking in usage of helicopters in the Korean War that eventually led to Army Aviation organizational changes.

The conflict episode of the Korean War created organizational changes in Army Aviation in the arena of medical evacuation. Senior U.S. Army leaders realized the value of the helicopter

⁴⁸Vanderpool, "We Armed the Helicopter," 4.

⁴⁹Wheeler, *Attack Helicopters*, 24.

⁵⁰*Ibid.*, 25.

⁵¹*Ibid.*

⁵²Everett-Heath, *Helicopters in Combat*, 17.

during the Korean War. Recognizing the great potential of the helicopter in multiple roles based on previous conflict episodes, helicopters were widely used during the Korean War. The Korean War provided the stage in which the helicopter's capabilities of medical evacuation, reconnaissance, and transport abilities could once again be exploited.⁵³ Moreover, new missions of the helicopter such as command and control, mine spotting, vertical envelopment, and combat logistics were introduced.⁵⁴

The primary mission of helicopters during the Korean War was medical evacuation. During the three years of Korean War, more than 600 helicopters evacuated approximately 18,000 United Nation casualties.⁵⁵ Based on the medical evacuation requirements during the Korean War, helicopters in the U.S. were organized into the 1st, 2nd, 3rd, and 4th Helicopter Detachments. Since the primary mission of the helicopters was medical evacuation, helicopter detachments were attached to Mobile Army Surgical Hospitals. In August 1952, the U.S. Army formally established helicopter ambulance detachments as part of the Army Medical Service, based on the great success of the helicopter detachments in their role of medical evacuation.⁵⁶ These Helicopter Ambulance Detachments were some of the first formal Army Aviation helicopter organizations.

The first official usage by U.S. Forces of armed helicopters can be attributed to an OH-13 with a bazooka during the Korean War.⁵⁷ However, the French first used armed helicopters in Indochina.⁵⁸ The lessons learned during the Korean War concerning armed helicopters and medical evacuation were not forgotten but methodically exploited.

⁵³Wheeler, *Attack Helicopters*, 33.

⁵⁴Ibid.

⁵⁵Everett-Heath, *Helicopters in Combat*, 19.

⁵⁶Ibid.

⁵⁷Wheeler, *Attack Helicopters*, 41.

⁵⁸Ibid.

The Korean War experience convinced the leaders of the U.S. Army that more resources should be devoted to the research and development of helicopters and their employment on the battlefield.⁵⁹ The Army wanted helicopters that were more capable and more reliable on the battlefield. The Korean War spurred Army senior leaders to want better technology in order to support the myriad of missions given to the helicopter. The conflict episode of the Korean War created a need for newer technology that eventually caused organizational changes in Army Aviation.

In 1952, the concept of airmobility was introduced which would create Aviation organizational changes. In order to improve the employment of helicopters, in 1952, the U.S. Army initiated a study into the airmobility concept.⁶⁰ The airmobility concept involved the tactical movement of units by a helicopter. A decision was made on 21 August 1952 to form 12 Helicopter Battalions as soon as a capable troop-carrying helicopter was developed.⁶¹ The doctrine of the airmobility concept caused Army Aviation organizational changes. However, it is difficult to ascertain whether the conflict episodes of the Malayan Emergency and the Korean War directly or indirectly influenced the doctrine of the airmobility concept because the airmobility concept study occurred during both of these conflict episodes.

Past and present conflict episodes also generated doctrine that would lead to requirements for newer technology that would forever change Army Aviation organizational structure. Directly influenced by World War II and the Korean War, in 1955, the Continental Army Command conducted tests to determine the desirability and feasibility of employing Army aircraft as tank destroyers.⁶² These tests established requirements for doctrine, tactics, and techniques that would

⁵⁹Everett-Heath, *Helicopters in Combat*, 21.

⁶⁰Ibid.

⁶¹Ibid.

⁶²Wheeler, *Attack Helicopters*, 93.

lead to a requirement of a new type of armed/attack helicopters.⁶³ Results from these types of studies would lead to the development of the armed/attack helicopters organizations.

The doctrine of using suppressive fire in order to reduce the losses of assault helicopters caused the creation of armed/attack helicopters that would further change Aviation organizations. In 1956, Colonel Jay D. Vanderpool, Chief of the U.S. Army Aviation School's Combat Development, conducted experiments involving attack helicopters.⁶⁴ The purpose of these experiments was to use suppressive fire in order to reduce the losses of assault helicopters.⁶⁵ Vanderpool's experimental unit was called the Sky Cav, and was officially recognized as the 792d Aerial Combat Reconnaissance Company (Provisional).⁶⁶ The Sky Cav was officially an approved Table of Distribution sanctioned by the Department of the Army on 25 March 1958, and the unit was the forerunner of the present day Air Cavalry Squadron.⁶⁷

The variables of conflict episodes and doctrine led to Army Aviation organizational changes during the decade of 1950 to 1960. The Malayan Emergency influenced U.S. Army senior leaders in the utilization of helicopters in the missions of transport, paratrooper drops, casualty evacuation, reconnaissance, and communications. Influenced by the Malayan Emergency, the Korean War created the first medical evacuation units. Furthermore, the Korean War saw the first usage of armed helicopters.

The informal doctrine of airmobility and suppressive fire indirectly led to Army Aviation organizational changes. The study that was conducted in 1952 concerning the airmobility concept led to the formation of 12 Helicopter Battalions as soon as a capable troop-carrying helicopter

⁶³Ibid.

⁶⁴Vanderpool, "We Armed the Helicopter," 4.

⁶⁵Ibid.

⁶⁶Ibid.

⁶⁷John J. Tolson, *Airmobility 1961-1971* (Washington, DC: Government Printing Office, 1973), 6.

was developed. The suppressive fire concept led to the present day Air Cavalry Squadron. The airmobility concept and the suppressive fire concept were military leaders attempting to prepare for the next conflict episode based on lessons learned from previous conflict episodes.

Technology was an indirect factor that led to Army Aviation organizational changes from 1950 to 1960. New doctrine such as the airmobility and suppressive fire concept could not have changed Army Aviation organizations unless the proper technology was developed first. The airmobility concept needed a helicopter that was troop-carrying capable. The suppressive fire concept needed the technological means of an armed helicopter. Consequently, new technology was needed in order for doctrine to change Army Aviation organizational structures.

Analysis: 1960-1970

The decade of 1960 to 1970 consisted of significant events that led to organizational changes in Army Aviation. The Cold War and the Vietnam War were particularly important during this decade. The informal doctrine of airmobility and suppressive fire indirectly led to organizational changes, while the variable of technology was not a major factor.

The threat of a major war in Europe led directly to the formation of the Airmobile Division and the Air Cavalry Combat Brigade, specifically the 11th Air Assault Division.⁶⁸ Based on the increased amounts of Army Aviation requirements in Vietnam, the sheer numbers of aviation units increased in size, such as the 25th Aviation Battalion, the 1st Cavalry Division, the 1st Aviation Brigade, and the UTTHCO. This summarizes the changes of Army Aviation organizations during the decade of 1960 to 1970.

The threat of a major war in Europe led directly to the formation of the airmobile division and the air cavalry combat brigade.⁶⁹ In 1962, Secretary of Defense McNamara ordered the U.S.

⁶⁸Everett-Heath, *Helicopters in Combat*, 158.

⁶⁹Ibid.

Army to research “land warfare mobility.”⁷⁰ Consequently, this led to the formation of the Army Tactical Mobility Requirements Board (Howze Board). The Howze Board concluded with two major organizational changes for Army Aviation. The Howze Board recommended the Airmobile Division (Air Assault) and the Air Cavalry Combat Brigade.⁷¹ The Air Assault Division would be comprised of three brigade headquarters, an Air Cavalry Squadron, eight Airmobile Infantry Battalions, and Divisional Artillery.⁷² The immediate sequel to the Howze Board was the activation of the 11th Air Assault Division at Fort Benning in 1963.⁷³

The conflict episode of the Vietnam War led to many major changes in Army Aviation organizations. The build up of forces in Vietnam drove a major expansion and change in Army Aviation organizational structure. Before the Vietnam War, there were just a few Army Aviation battalions. However, during the Vietnam War, numerous companies expanded and became battalions, such as the 25th Aviation Company, which later became the 25th Aviation Battalion assigned to the 25th Infantry Division (25ID) assigned to Hawaii.⁷⁴ Another example of Army Aviation organizations increasing in size was the 11th Aviation Group, which expanded and became the 11th Air Assault Division in 1963.⁷⁵

In 1962, the experimental UTTHCO was established in Japan in order to address the deteriorating situation in South Vietnam.⁷⁶ The purpose of the UTTHCO was to test the feasibility of providing armed helicopter escort for troop transport helicopters.⁷⁷ It consisted of 15

⁷⁰Bradin, *From Hot Air to Hellfire*, 108.

⁷¹Tolson, *Airmobility 1961-1971*, 22.

⁷²Williams, *A History of Army Aviation*, 105.

⁷³*Ibid.*, 107.

⁷⁴*Ibid.*, 124.

⁷⁵*Ibid.*

⁷⁶Everett-Heath, *Helicopters in Combat*, 70.

⁷⁷Wheeler, *Attack Helicopters*, 60.

UH-1As and later was complemented with an additional 11 UH-1Bs.⁷⁸ The results of the experimental UTTHCO led to organizational changes during the Vietnam War. It was concluded that five to seven armed helicopters could protect up to 25 non-armed troop transport helicopters.⁷⁹

The evolution of the air mobility concept continued based on the needs of the Vietnam conflict. In July 1965, the 11th Air Assault Division and the 2d Infantry Division formed the 1st Cavalry Division.⁸⁰ Shortly after the formation of the 1st Cavalry Division in the United States, it was deployed in support of U.S. operations in Vietnam. Figure 1 shows the aviation units in the 1st Cavalry Division (Airmobile) in 1965.⁸¹ The Air Cavalry's primary mission was to fix and find the enemy. The aviation group consisted of one CH-47 Battalion and two UH-1 Battalions.⁸²

⁷⁸Everett-Heath, *Helicopters in Combat*, 70.

⁷⁹Ibid., 74.

⁸⁰Tolson, *Airmobility 1961-1971*, 61.

⁸¹Everett-Heath, *Helicopters in Combat*, 79.

⁸²Ibid.

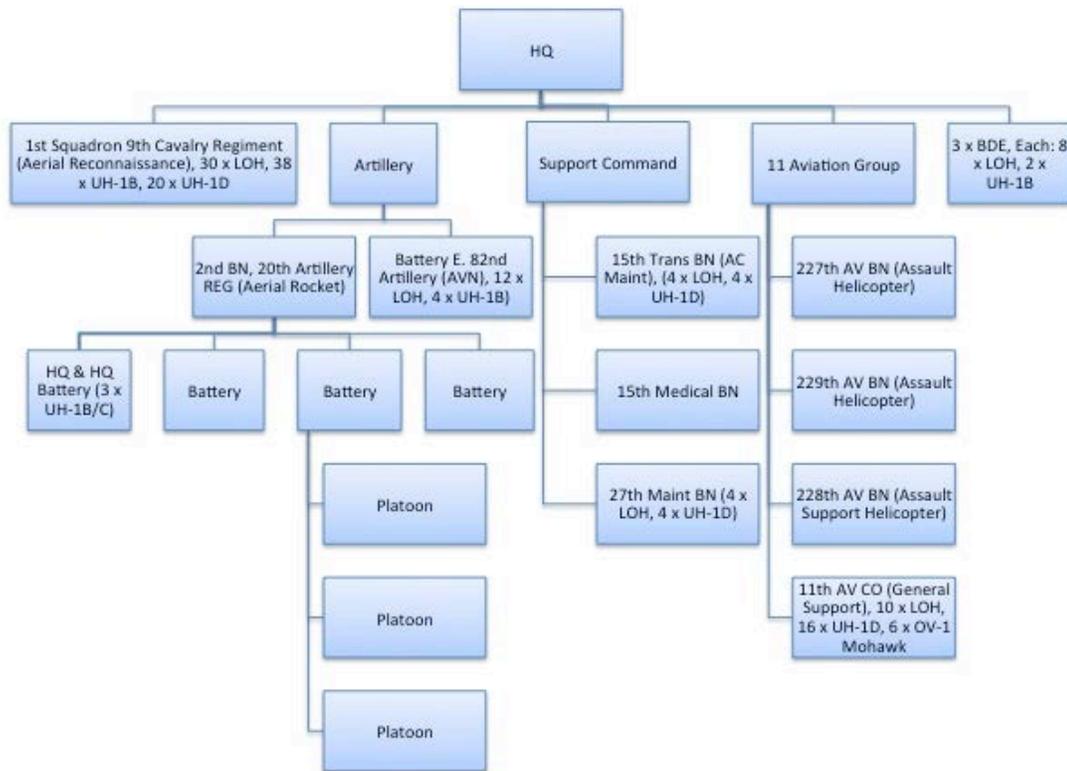


Figure 1. Aviation Units in the 1st Cavalry Division (Airmobile) in 1965

Source: John Everett-Heath, *Helicopters in Combat: The First Fifty Years* (London: Arms and Armor, 1992), 79.

The 1st Aviation Brigade was formed on 1 March 1966 in Vietnam.⁸³ Before the formation of 1st Aviation Brigade, aviation units developed informal distinct methods of operations and procedures with locally supported commanders. Consequently, it was difficult for aviation units to support commanders in other geographic areas that they had not worked with previously. As a result, the 1st Aviation Brigade was formed based on the need for a high degree of standardization of training, procedures, and methods of operations.⁸⁴ In June of 1970, the 1st Aviation Brigade consisted of four aviation groups, 16 Combat Aviation Battalions, and 83

⁸³Tolson, *Airmobility 1961-1971*, 102.

⁸⁴Ibid.

Companies with more than 4000 aircraft and 27,000 soldiers.⁸⁵ This was the first time Army Aviation had a unit at the brigade organizational level.⁸⁶ Figure 2 shows the organizational chart of the 1st Aviation Brigade on 1 August 1968.⁸⁷

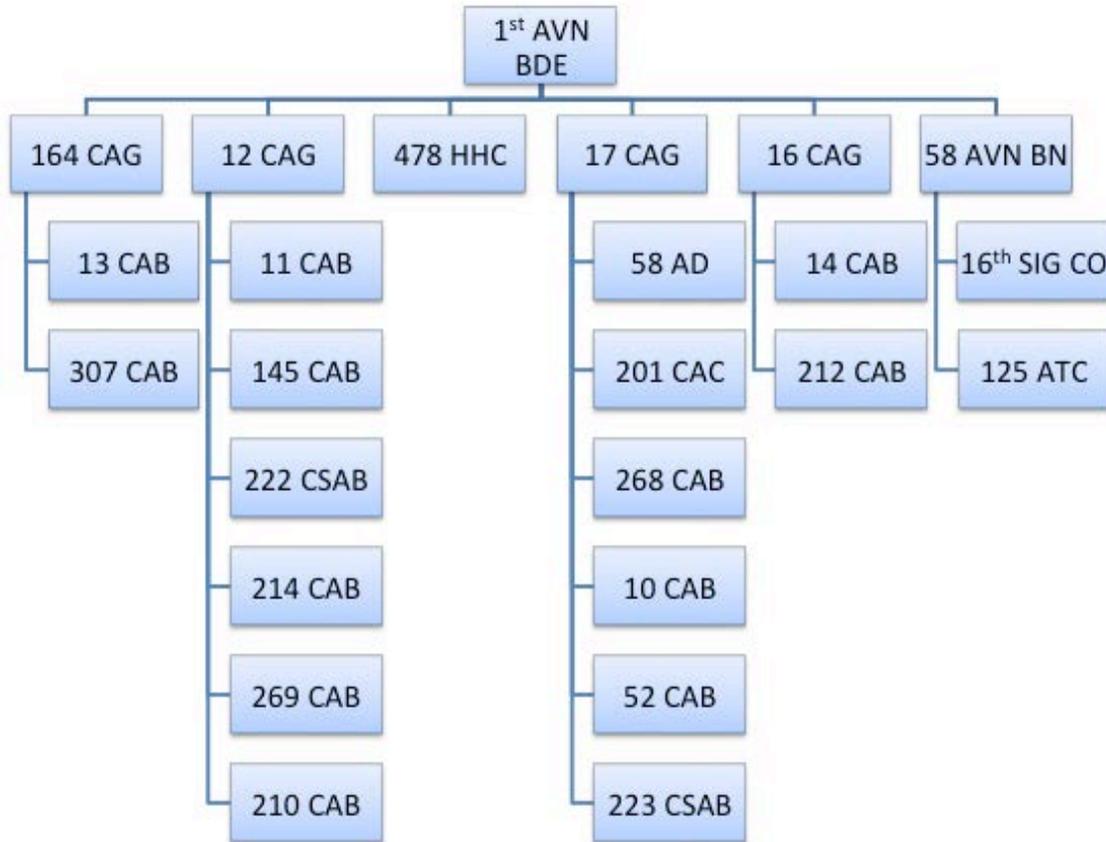


Figure 2. 1st Aviation Brigade Organization, 1 August 1968

Source: John J. Tolson, *Airmobility 1961-1971* (Washington, DC: Government Printing Office, 1973), 203.

⁸⁵Williams, *A History of Army Aviation*, 136.

⁸⁶Ibid.

⁸⁷Tolson, *Airmobility 1961-1971*, 203.

The variable of conflict episodes directly led to Army Aviation organizational changes during the 1960s to 1970s. Based on the increased amount of Army Aviation requirements in Vietnam, the sheer numbers of Aviation Units increased in size. Examples of units increasing in size and transforming are the 25th Aviation Battalion and the 1st Cavalry Division. Furthermore, the 1st Aviation Brigade formed during the Vietnam War in order to standardize operations.

Informal doctrine indirectly led to Army Aviation organizational changes during the 1960s to 1970s. The informal doctrine of airmobility and suppressive fire from the 1950s to 1960s helped create organizations such as the 11th Air Assault Division (which eventually formed into the 1st Cavalry Division) and the UTTHCO. The conflict episode of the Vietnam War was metaphorically speaking the “vehicle” that accelerated the informal doctrine of airmobility and suppressive fire. However, without the conflict episode of the Vietnam War, it seems more than likely that Army Aviation organizations would not have changed, or that Army Aviation organizations would have changed more slowly, incorporating the ideas of airmobility and suppressive fire.

Technology was not a factor that led to Army Aviation organizational changes during the decade of 1960 to 1970. This is not to say that there were not some remarkable technological advances during this decade. The UH-1 (Huey) and the AH-1 (Cobra) were introduced during the Vietnam War, and greatly transformed Army Aviation for decades to come in terms of capabilities. However, there were no technological advances that occurred during this decade that can be directly or indirectly linked to Army Aviation organizational changes.

The existential threat of the Cold War directly led to Army Aviation organizational changes. The Howze Board concluded with two major organizational changes for Army Aviation. The Howze Board recommended the Airmobile Division (Air Assault) and the Air Cavalry

Combat Brigade.⁸⁸ It is important to note that even though the concept of airmobility and the Air Cavalry were not new concepts, the Howze Board recommended the formation of units based on these informal doctrines. Consequently, the Cold War led to Army Aviation organizational changes.

Analysis: 1970-1980

The decade of 1970 to 1980 consisted of significant events that led to organizational changes in Army Aviation. The conflict episodes of the Vietnam War and Arab-Israeli War in 1973 resulted in changes in Army Aviation organizations during this decade. The variable of doctrine was not a major factor during this decade. Technological variables such as a high air defense threats and integration of new modernized helicopters were major factors that had a significant effect on aviation organizational changes. Other factors such as the Cold War and budget constraints also resulted in aviation organizational changes.

The Vietnam War led to the creation of the first Attack Helicopter Company in 1970. In addition, with the drawdown of military forces in Vietnam, numerous aviation units were inactivated, such as the 10th Aviation Group and the 20th Aviation Battalion. The Cold War created the first Attack Helicopter Battalion. An advanced air defense and integration of new helicopters created aviation organizational changes in the attack company, Air Cavalry troop, Combat Support Aviation Companies (CSAC), and the medium lift company through the ARCSA III study. The ARCSA III study also recommended that the Infantry/Airborne Division structure include two CSAC and only one Attack Helicopter Company, while the Armored/Mechanized Division structure include only one Combat Support Aviation Company

⁸⁸Ibid., 22.

and two Attack Helicopter Companies.⁸⁹ This summarizes the changes of Army Aviation organizations during the decade of 1970 to 1980.

In 1970, during the later stages of the Vietnam War, the first Attack Helicopter Company Table of Organization and Equipment was formed. The attack companies would be composed of either the UH-1Cs or the AH-1Gs.⁹⁰ The UH-1C companies were organized with three platoons of four sections each for a total of 24 aircraft.⁹¹ The AH-1G companies consisted of 18 AH-1Gs versus the 24 aircraft in a UH-1C company, due to the greater firepower of the AH-1G helicopter.⁹² Figure 3 shows the Attack Helicopter Company organizational chart.⁹³ This is significant because this was the first time the Attack Helicopter Company consisted of all attack helicopters. While previously, Attack Helicopter Companies were task-organized with non-attack helicopters at the company level.

⁸⁹Hall et al., “ARCSA III,” 18.

⁹⁰U.S. Department of the Army, Table of Organization and Equipment 17-111, 22, 35.

⁹¹Ibid., 2.

⁹²Ibid., 35.

⁹³Ibid., 2.

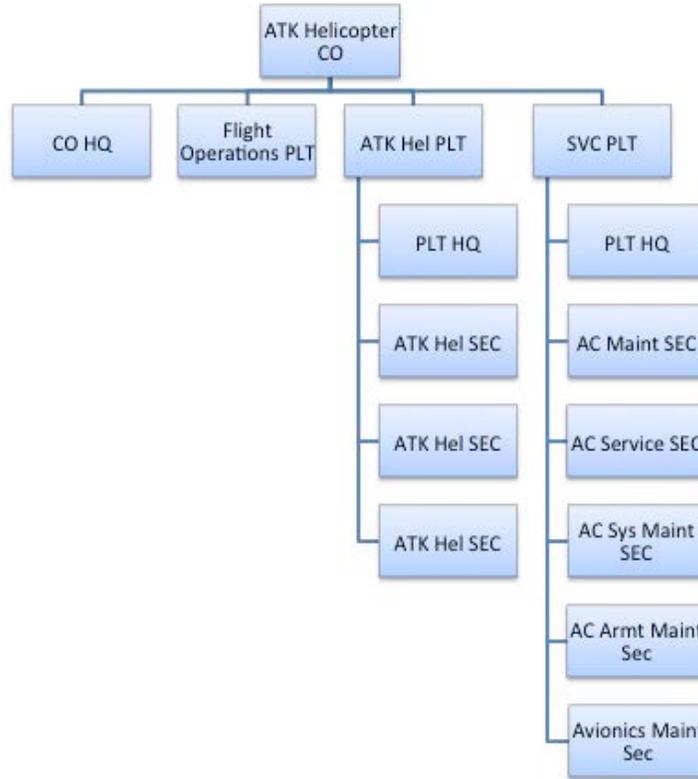


Figure 3. First Attack Helicopter Company (1970)

Source: U.S. Department of the Army, Table of Organization and Equipment 17-111, *Attack Helicopter Company* (Washington, DC: Government Printing Office, 15 September 1970), 22, 35.

The conclusion of the Vietnam War led to numerous Aviation Units deactivating. For example, the 10th Aviation Group inactivated at Fort Benning in 1970, and the 20th Aviation Battalion inactivated at Fort Carson.⁹⁴ This began a cascade of inactivation's that closely resembled the build up of Army Aviation before and during the Vietnam War.⁹⁵

The Cold War and the Arab-Israeli War in 1973 directly accelerated the need for an attack helicopter capable of destroying tanks. The Cold War created an urgency to design an attack helicopter to destroy the massive number of tanks expected in a mid-intensity European

⁹⁴Williams, *A History of Army Aviation*, 162.

⁹⁵Ibid.

conflict. In addition, lessons learned from the Arab-Israeli War in 1973 brought to light the increased need for a more advanced attack helicopter in order to cope with the large number of tanks expected in the next conflict.⁹⁶

The Cold War caused Army Aviation organizational changes. The first experimental Attack Aviation Battalion was formed in 1972. The battalion consisted of three companies.⁹⁷ Each company consisted of 21 AH-1s, 12 OH-58s, and 3 UH-1s.⁹⁸ In addition, the company was capable of independent operations due to having Company Headquarters, a flight operations section, an Aviation Unit Maintenance Platoon, and three platoons of attack helicopters.⁹⁹ This attack helicopter formation would be the standard until the new Table of Organization and Equipment was established in 1986. This battalion structure is important because it is the pre-cursor to the modern attack helicopter battalion that exists today. Figure 4 shows the Experimental Attack Helicopter Company organizational chart.¹⁰⁰ The 4th Battalion (Attack Helicopter), 77th Field Artillery from the 101st Airborne Division (Air Assault) was one of the first Attack Helicopter Battalions formed.¹⁰¹ The battalion was formed in order to provide a quick fix to kill tanks in a mid-intensity battlefield.¹⁰²

⁹⁶“Implications of the Middle East War on U.S. Army Tactics, Doctrine, And Systems,” in Selected Papers of General William E. DePuy, The William E. DePuy Papers, Command History Office, U.S. Army Training and Doctrine Command, Fort Monroe, VA, 1 July 1973, 94.

⁹⁷Headquarters, U.S. Army Combat Developments Command, Technical Manual 17-387T, 4.

⁹⁸Ibid., 21.

⁹⁹Ibid., 2.

¹⁰⁰Ibid.

¹⁰¹Sloniker and Sosnowski, “Attack,” 4.

¹⁰²Ibid.

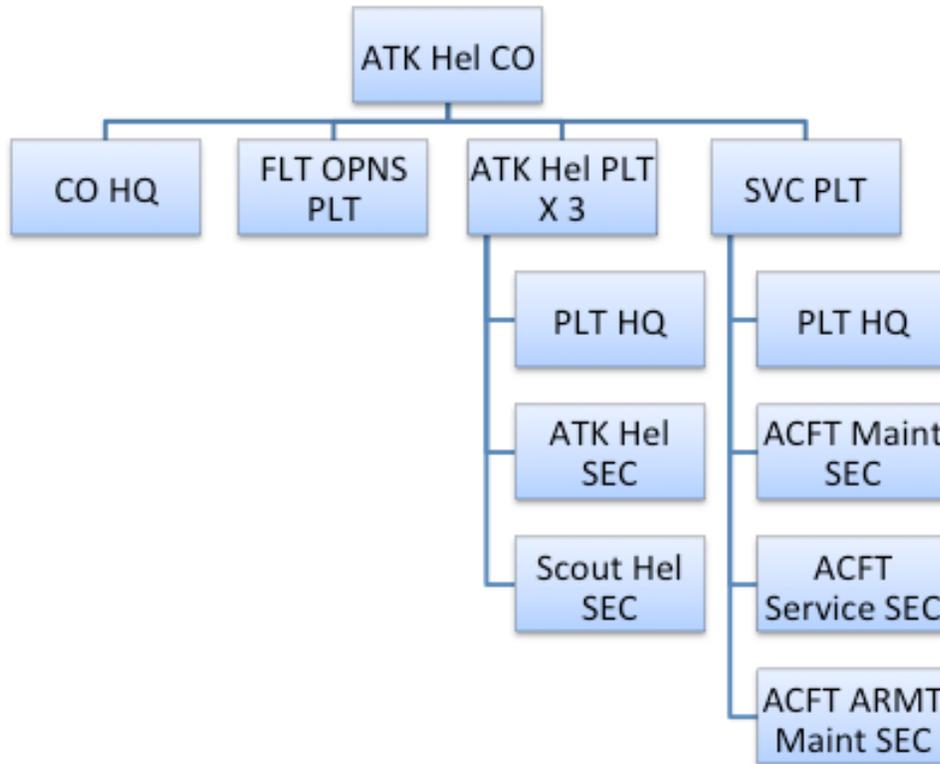


Figure 4. Experimental Attack Aviation Company

Source: Headquarters, U.S. Army Combat Developments Command, Technical Manual 17-387T (Tentative) (Experimental), *Attack Helicopter Company* (Fort Belvoir, VA: Government Printing Office, 1972), 2.

A high air defense threat and integration of new helicopters were major factors that led to profound changes to Army Aviation organizations during this decade. The ARCSA III study was formed in 1976 because of the high air defense threat.¹⁰³ The purpose of the ARCSA III study was to determine how many aircraft were required, what types of aircraft were needed, and where all these assets should be located in the Army Structure.¹⁰⁴ The ARCSA III study recommended

¹⁰³Hall et al., “ARCSA III,” 2.

¹⁰⁴Ibid., 3.

changes at the brigade, division and corps organizational level. The Army Chief of Staff approved the ARCSA III study in February 1977.¹⁰⁵

The ARCSA III study recommended that all attack helicopters be located in Attack Helicopter Companies in order to increase the lethality of the aerial anti-armor capabilities.¹⁰⁶ Attack Helicopter Companies consisted of mainly AH-1G/Q and the new AH-1s.¹⁰⁷ Consequently, attack helicopters were removed from Assault Helicopter Companies and consolidated into individual companies and troops. As a result of consolidating attack helicopters in companies, the ARCSA III study recommended the following structuring rules for attack helicopter companies: two per Armored/Mechanized Division, one per Infantry/Airborne Division, one per Armored Cavalry Regiment, six per Air Cavalry Combat Brigade, and three per Air Assault Division.¹⁰⁸

The ARCSA III study also recommended numerous changes to the Air Cavalry Troops. Air Cavalry Troops consisted of mainly AH-1G/Q and the new AH-1s.¹⁰⁹ Due to Air Cavalry Troops being essential in all divisional level units, the ARCSA III study recommended the following structuring rules for Air Cavalry Troops: one per Armored/Mechanized Division, three per Infantry/Airborne/Air Assault Division, one per Infantry Division, one per Armored Cavalry Regiment, and three per Air Cavalry Combat Brigade.¹¹⁰

¹⁰⁵U.S. Department of the Army, Field Manual (FM) 17-50, *Attack Helicopter Operations* (Washington, DC: Government Printing Office, 1984), v.

¹⁰⁶Hall et al., "ARCSA III," 17.

¹⁰⁷*Ibid.*

¹⁰⁸*Ibid.*

¹⁰⁹*Ibid.*

¹¹⁰*Ibid.*

Furthermore, the ARCSA III study recommended changes in CSAC. The CSAC consisted of the UH-1H and the new Utility Tactical Transport Aircraft System.¹¹¹ The CSAC mission in the Armored/Mechanized Division was logistical support, while in the Infantry/Airborne Divisions, the CSAC mission was combat assault.¹¹² In order to provide each division with an integrated logistics and resupply capability the following structuring rules were developed for CSAC: one per Armored/Mechanized Division, two per Infantry/Airborne Division, one per Corps, and six per Air Assault Division.¹¹³

The ARCSA III study also made changes to the Medium Helicopter Companies. The Medium Helicopter Companies consisted of the CH-47 helicopter.¹¹⁴ According to the ARCSA III study, the Medium Helicopter Company would increase in size from 16 to 24 CH-47s.¹¹⁵ This was done in order to modularize the company into three, eight-aircraft platoons to provide support to separate units or task forces as necessary. The following structuring rules were developed for each medium helicopter company: two per Corps, two per Air Assault Division, two per Theater (USAREUR) and one per Air Cavalry Combat Brigade.¹¹⁶

Figure 5 shows the results of the changes of aviation organization at the Armored/Mechanized Division structure based on the ARCSA III study.¹¹⁷ Figure 6 shows the results of the changes of aviation organizations at the Infantry/Airborne Division structure based on the ARCSA III study.¹¹⁸ The Infantry/Airborne Division structure has two CSAC and only one

¹¹¹Ibid.

¹¹²Ibid.

¹¹³Ibid.

¹¹⁴Ibid.

¹¹⁵Ibid.

¹¹⁶Ibid.

¹¹⁷Ibid., 18.

¹¹⁸Ibid.

Attack Helicopter Company, while the Armored/Mechanized Division structure has only CSAC and two Attack Helicopter Companies.¹¹⁹

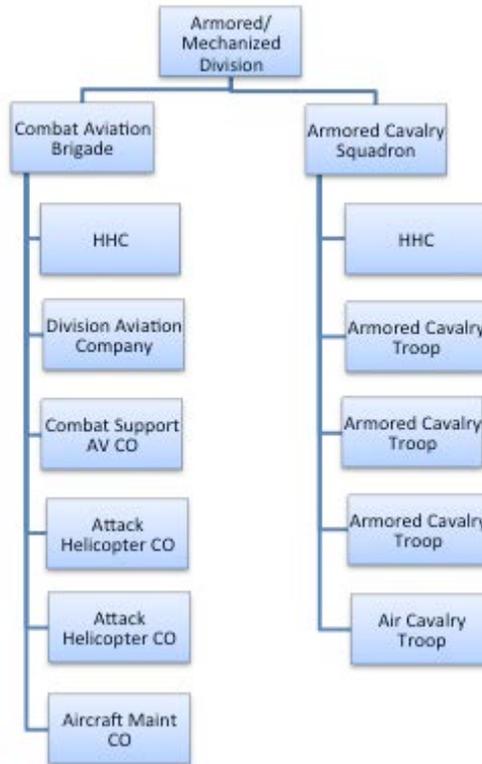


Figure 5. ARCSA III Armored/Mechanized Division Aviation Organizations

Source: Major George R. Hall, Major Russell H. Smith, Major Lewis D. Ray, and Captain Lloyd McCammon, "ARCSA III," *U.S. Army Aviation Digest* 23, no. 7 (July 1977): 18.

¹¹⁹Ibid.

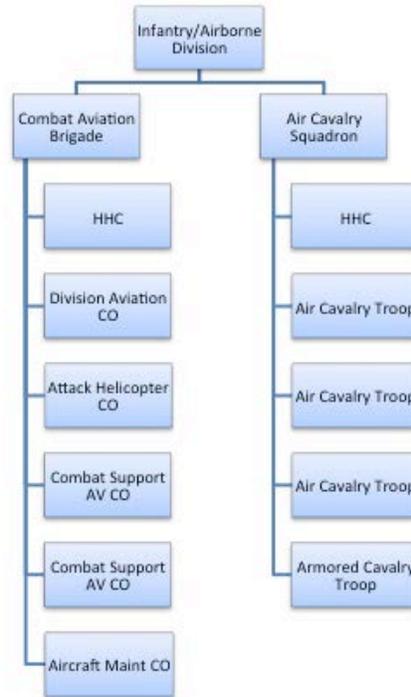


Figure 6. ARCSA III Infantry/Airborne Division Aviation Organizations

Source: Major George R. Hall, Major Russell H. Smith, Major Lewis D. Ray, and Captain Lloyd McCammon, "ARCSA III," *U.S. Army Aviation Digest* 23, no. 7 (July 1977): 18.

During the decade of 1970 to 1980, the Advanced Attack Helicopter was delayed due to budget constraints. The Carter Administration determined to reduce the Defense Department budget by recommending cutting the Advanced Attack Helicopter funds by one-half.¹²⁰ The reduced amount of the budget dedicated to the Advanced Attack Helicopter would slow down development, testing, and fielding of the helicopter.

The variable of conflict episodes directly led to Army Aviation organizational changes during the decade of 1970 to 1980. In 1970, during the Vietnam War, the first Attack Helicopter Company was formed based on the needs of tactical ground commanders. Concurrently, the United States was inactivating some units based on the drawdown of military forces in Vietnam.

¹²⁰Bradin, *From Hot Air to Hellfire*, 150.

The United States was not directly involved in the Arab-Israeli War in 1973. Regardless, many senior leaders in the military at the time, like General William E. Depuy, Commander of the United States Army Training and Doctrine Command, recognized the need for attack helicopters to destroy tanks in a mid-intensity conflict in Europe.

Doctrine did not lead to Army Aviation organizational changes during the decade of 1970 to 1980. The author can only conclude that perhaps the senior leadership in the military was focused on the drawdown and after effects of the Vietnam War. In addition, during this decade the focus of the senior military leadership was the mid-intensity conflict in Europe. Consequently, the effort of developing doctrine was in direct support of the mid-intensity conflict in Europe, specifically the ARCSA III study.

Technology was a major factor that indirectly led to Army Aviation organizational changes during the decade of 1970 to 1980. The technological advances of an advanced air defense threat and new modernized helicopters created the ARCSA III study. Consequently, the ARCSA III study recommended changes at the Brigade, Division, and Corps organizational level. Technology was also a factor that changed the number of helicopters in the first Attack Helicopter Company. The first Attack Helicopter Company consisted of either 24 UH-1Cs or 18 AH-1Gs based on the greater lethality of the AH-1Gs over the UH-1Cs. The air defense threat was based on emerging threats from the Cold War. Consequently, the variable of technology was driven by the Cold War.

Other variables such as the Cold War and budget constraints led to aviation organizational changes. The Cold War created an urgency to design an attack helicopter to destroy the massive number of tanks expected in a mid-intensity European conflict. Furthermore, the Cold War helped create the first Attack Helicopter Battalion. In addition, the usage of air defense assets by the Cold War threats helped create the ARCSA III study. Lastly, budget constraints would slow down development, testing, and fielding of the new Advanced Attack Helicopter.

Analysis: 1980-1990

The decade of 1980 to 1990 consisted of significant events that led to organizational changes in Army Aviation. The conflict episode of the Arab-Israeli War in 1973 resulted in changes in Army Aviation organizations during this decade. The variable of doctrine was not a major factor during this decade. The technological variable of new modernized helicopters was a major factor that resulted in aviation organizational changes. Other factors such as the Cold War and budget constraints also gave rise to aviation organizational changes.

The ARCSA IV study brought the creation of the Division Aviation Brigade. The AOE concept made major organizational changes to Army Aviation at the Corps, Division, Armored Cavalry Regiment and Battalion levels. Budget constraints during this decade caused the cancellation of the Air Cavalry Attack Brigade organizational design. The main goal of the Army Aviation Modernization Plan (AAMP) in 1988 was to modernize the aviation fleet but reduce the number of aircraft. This summarizes the changes of Army Aviation organizations during the decade of 1980 to 1990.

The United States Army Training and Doctrine Command directed the ARCSA IV study to be conducted in 1983. The major impact the ARCSA IV study brought was the creation of the Division Aviation Brigade. The Divisional Aviation Brigade included Attack Helicopter Battalions, an Air Cavalry Squadron and additional aviation assets from the Division.¹²¹ Figure 7 shows the Heavy Division Aviation Brigade.¹²²

¹²¹US Army Aviation Center, *Aviation Requirements for the Combat Structure of the Army (ARCSA) IV, Final Report* (Fort Rucker, AL: Government Printing Office, 22 February 1985), 4-7.

¹²²Ibid.

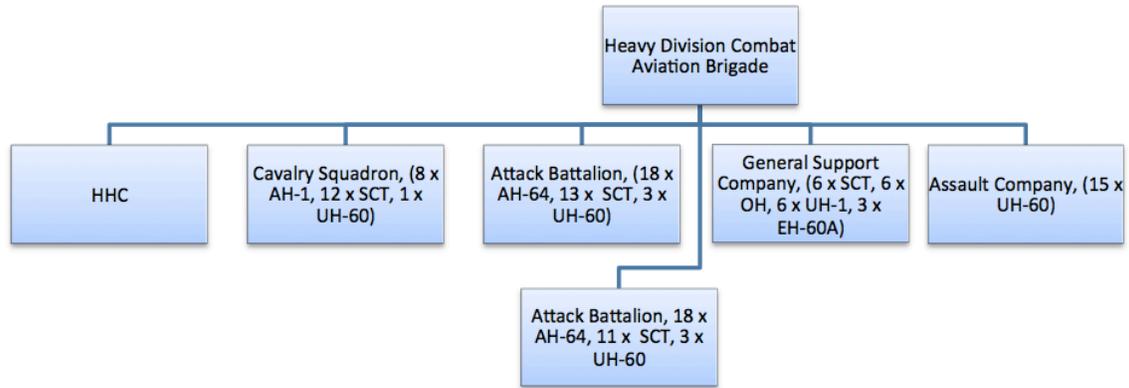


Figure 7. Divisional Aviation Brigade based on ARCSA IV study

Source: US Army Aviation Center, *Aviation Requirements for the Combat Structure of the Army (ARCSA) IV, Final Report* (Fort Rucker, AL: Government Printing Office, 22 February 1985), 4-7.

The buildup of Soviet Forces and the 1973 Mideast War caused the creation of the AOE design.¹²³ The AOE concept made major organizational changes to Army Aviation. Under the AOE concept, the Army Aviation organizational structure consisted of 10 Active Component and six Reserve Component, Combat Aviation Brigades (CAB) for Light Divisions, one brigade for the Air Assault Division, six Corps Aviation Brigades, and three Regimental Aviation Brigades.¹²⁴ Table 1 depicts the number of aviation units per Corps, Division, and Armored Cavalry Regiment under the AOE design.¹²⁵ Table 2 depicts the type and number of attack/recon helicopters in a Heavy Battalion, Light Battalion and Cavalry Squadron under the AOE design.¹²⁶ Table 3 depicts the type and number of helicopters in Transport and Support Aviation Units under

¹²³Romjue, *The Army of Excellence*, 2.

¹²⁴Williams, *A History of Army Aviation*, 200.

¹²⁵Frances M. Lussier and United States Congressional Budget Office, *An Analysis of U.S. Army Helicopter Programs* (Washington, DC: Congress of the United States, Congressional Budget Office, 1996), 67.

¹²⁶*Ibid.*, 68.

the AOE design.¹²⁷ On 23 November 1983 General John A. Wickham, Jr., Chief of Staff of the Army, issued directions to implement the AOE.¹²⁸

Table 1. Type and Number of Aviation Units Assigned under the AOE Design

Type and Number of Aviation Units Assigned to the Army's Major Fighting Units Under the Army of Excellence Design						
Unit	Attack Battalion		Cavalry Squadron	Utility Units		Medium Helicopter Company
	Heavy	Light		Assault CO	CMD or Support CO	
Corps Division	6	0	0	6	4	4
Heavy	2	0	1	1	1	0
Light Infantry	0	1	1	2	0	0
Airborne	1	0	1 1/2	2	0	0
Air Assault	4	0	2	6	3	2
Armored Cavalry Regiment	0	2/3	1 1/2	1	0	0

Source: Frances M. Lussier and United States Congressional Budget Office, *An Analysis of U.S. Army Helicopter Programs* (Washington, DC: Congress of the United States, Congressional Budget Office, 1996), 67.

Table 2. Number of Attack/Recon Helicopters in Combat Aviation Units under the AOE Design

Type and Number of Helicopters in Combat Aviation Units Under the Army of Excellence Design					
Unit	Attack Battalion		Scout	Utility Assault CO	Total
	Heavy	Light			
Heavy Attack Battalion	18 or 21 ^a	0	13	3	34 or 37
Light Attack Battalion	0	12 or 21 ^b	13	3	28 or 37
Cavalry Squadron	0	4 or 8 ^c	12	1	17 or 21

a. Depending on the type of helicopter available, heavy attack battalions include 18 Apaches or 21 Cobras

b. Depending on the type of helicopter available, light attack battalions include 12 Kiowa Warriors or 21 Cobras

c. Depending on the type of helicopter available, cavalry squadrons include 4 Kiowa Warriors or 8 Cobras

Source: Frances M. Lussier and United States Congressional Budget Office, *An Analysis of U.S. Army Helicopter Programs* (Washington, DC: Congress of the United States, Congressional Budget Office, 1996), 68.

¹²⁷Ibid., 69.

¹²⁸Williams, *A History of Army Aviation*, 200.

Table 3. Number of Transport Helicopters in Combat Aviation Units under the AOE Design

Type and Number of Helicopters in Transport and Support Aviation Units Under the Army of Excellence Design				
Unit	Scout	Utility	Cargo	Total
Assault Battalion ^a	6	33 or 49	0	39 or 55
Command Company ^b	12	9	0	21
Medical Evacuation Company	0	15	0	15
Medium-Helicopter Company	0	0	16	16

a. Includes two assault companies, each with 15 Blackhawks or 23 Hueys, and a command company that has 5 scouts and 3 Blackhawks

b. This type of unit is found within a division's general support aviation battalion

Source: Frances M. Lussier and United States Congressional Budget Office, *An Analysis of U.S. Army Helicopter Programs* (Washington, DC: Congress of the United States, Congressional Budget Office, 1996), 69.

During the decade of 1980 to 1990 the Air Cavalry Attack Brigade, as part of the Division 86 Concept, was deemed unaffordable.¹²⁹ The Air Cavalry Attack Brigade was designed to maximize the capabilities of aviation within the division.¹³⁰ Budget constraints during this decade caused the cancellation of the Air Cavalry Attack Brigade organizational design.

The main goal of the AAMP in 1988 was to modernize the aviation fleet but reduce the number of aircraft in the Army inventory. The AAMP authorized the purchase of 807 AH-64 Apaches, 2253 UH-60 Black Hawks, 207 OH-58D Kiowas, 472 CH-47 Chinooks, and 2096 Light Helicopter Experimental (LHX) helicopters.¹³¹ Furthermore, the AAMP provided specially-modified aircraft for Special Operations Forces.¹³² Under the AAMP program, thousands of Vietnam-era helicopters would be retired over the next 20 years.¹³³ The focus of the AAMP was

¹²⁹John A. Bonin, "Army Aviation Becomes an Essential Arm: From the Howze Board to the Modular Force 1962-2004" (Dissertation, Temple University, May 2006), 274.

¹³⁰James H. Merryman, "Air Cavalry Attack Brigade," *U.S. Army Aviation Digest* 25, no. 11 (November 1979): 2.

¹³¹Vincent H. Demma, *Department of the Army Historical Summary, Fiscal Year 1989* (Washington, D.C.: Center of Military History, 1998), <http://www.history.army.mil/books/DAHSUM/1989/CH11.htm> (accessed 14 August 2012), 224.

¹³²*Ibid.*

¹³³*Ibid.*

the LHX. The LHX was to replace the older AH-1 Cobra and the OH-58D Kiowa helicopters and to complement the AH-64 Apache.¹³⁴ The LHX would later be designated as the RAH-66 Comanche.

The variable of conflict episodes indirectly led to Army Aviation organizational changes during the decade of 1980 to 1990. The United States was involved in conflict episodes during the decade of 1980 to 1990 such as the invasion of Grenada in 1983, and the invasion of Panama in 1989. However, neither of these conflict episodes led to Army Aviation organizational changes. The Arab-Israeli War in 1973 indirectly led to Army Aviation organizational changes. The Arab-Israeli War in 1973 coupled with the Cold War threat led to the AOE design. The AOE design concept caused sweeping Aviation organizational changes at the Corps, Divisional, and Battalion levels.

Doctrine indirectly led to Army Aviation organizational changes during the decade of 1980 to 1990. The AOE concept made major organizational changes to Army Aviation from the Division to the Battalion level. It is important to note that the AOE concept was driven by the Cold War. The variable of doctrine did not act independently to change Army Aviation organizations.

Technology was a factor that led to Army Aviation organizational changes. During this decade, there were significant Army Aviation technological advances. First and foremost, the AH-64 Apache was fielded to the Army in 1984.¹³⁵ In addition, there were numerous modernization upgrades funded for the UH-60 and CH-47 helicopter platforms. Finally, the LHX concept was funded. The technological advances led to changes at the Battalion level. At the Battalion level, fewer modernized helicopters were needed to accomplish the mission set of older helicopters. Referring to table 2, the number of aircraft in the Heavy Attack Battalion, Light

¹³⁴Ibid.

¹³⁵Williams, *A History of Army Aviation*, 211.

Attack Battalion, or Cavalry Squadron depended on whether the advanced AH-64 Apache, the OH-58 Kiowa, or the older AH-1 Cobra were utilized.¹³⁶ Referring to table 3, the number of aircraft in the Assault Battalion depended on whether the advanced UH-60 Blackhawk or the older UH-1 Huey were utilized.¹³⁷ The great technological advances during this decade were more than likely driven by the Cold War.

The Cold War was a major factor that led to organizational changes in Army Aviation during the 1980s. The Cold War directly led to the design of AOE. The AOE concept made major organizational changes to Army Aviation at the Corps, Division, Armored Cavalry Regiment, and Battalion levels. More than likely, the ARCSA IV study in 1983 was based on the Cold War threat. The author has not found any formal documents that state the factors that led to the ARCSA IV study. However, since the height of the Cold War threat was during in the 1980s, it is logical to conclude the ARCSA IV study was conducted because of the Soviet threat. The major impact the ARCSA IV study brought was the creation of the Division Aviation Brigade. For the same reasons the ARCSA IV study was directed, it is safe to assume that the AAMP of 1988 was at least partially due to the Cold War threat. The goal the AAMP of 1988 was to modernize the Army Aviation aircraft while decreasing the number of aircraft. The incentive to modernize aircraft was more than likely due to the Cold War threat.

Budget constraints led to organizational changes in Army Aviation. The goal of the AAMP of 1988 was to modernize the Army Aviation aircraft while decreasing the number of aircraft. One of the main reasons Army Aviation wanted to decrease the number of aircraft in their inventory was to save money.¹³⁸ Under the AAMP program, thousands of Vietnam-era

¹³⁶Lussier and United States Congressional Budget Office, 68.

¹³⁷Ibid., 69.

¹³⁸Bonin, "Army Aviation Becomes an Essential Arm," 292.

helicopters would be retired over the next 20 years.¹³⁹ Furthermore, budget constraints during this decade caused the cancellation of the Air Cavalry Attack Brigade organizational design.

Analysis: 1990-2000

The decade of 1990 to 2000 consisted of significant events that led to organizational changes in Army Aviation. The conflict episodes of Operation Desert Storm in 1990 resulted in changes in Army Aviation organizations during this decade. The doctrine and technological variables were not factors during this decade. Other factors such as the Cold War and budget constraints also resulted in aviation organizational changes.

Conflict episodes led to the ARI. One of the main reasons the ARI was developed was to resolve the imbalance of required versus actual capability of helicopter platforms in the AOE design.¹⁴⁰ Another reason the ARI was developed was based on the after action review comments from Operation Desert Storm.¹⁴¹ Budget constraints affected the ability to produce manpower and equipment to support the requirement in the AOE design. Consequently, aviation units did not have sufficient equipment and manpower to support the AOE design. The ARI attempted to fix this problem.¹⁴²

The ARI had two main goals. The first goal was to simplify the structure and composition of the Army's basic Aviation Units.¹⁴³ The second goal was to reduce the number of personnel and helicopters needed to fill and support those units.¹⁴⁴ The ARI would streamline Aviation Units by eliminating multiple types of aircrafts within units if feasible.¹⁴⁵ For example, under the

¹³⁹Demma, *Department of the Army Historical Summary, Fiscal Year 1989*, 224.

¹⁴⁰Williams, *A History of Army Aviation*, 316-317.

¹⁴¹Bonin, "Army Aviation Becomes an Essential Arm," 365.

¹⁴²Williams, *A History of Army Aviation*, 317.

¹⁴³Lussier and United States Congressional Budget Office, 19.

¹⁴⁴*Ibid.*

¹⁴⁵*Ibid.*

AOE design, the Light Attack Battalion was composed of AH-1s, UH-1s, and OH-58s. The ARI design called for the RAH-66 Comanche helicopter to be the only helicopter in a Light Attack Battalion.

In addition to reducing the type of aircrafts in Army Aviation, the ARI directed the Army to reduce the total number of helicopters within some types of units. Table 4 shows the decreased amount of total Army helicopters from the AOE design of 5910, to the ARI design of 4430.¹⁴⁶ Table 5 shows the type and number of Aviation Units assigned to the Corps, Division, and Armored Cavalry Regiment.¹⁴⁷ Table 6 shows the decreased number of Aviation Units in the Army from the AOE design to the ARI design.¹⁴⁸ Table 7 shows the differences of the type and number of helicopters in Combat Aviation Units between the AOE and ARI designs.¹⁴⁹ Table 8 shows the differences of the type and number of helicopters in Transport and Support Aviation Units between the AOE and ARI designs.¹⁵⁰

¹⁴⁶Ibid., 20.

¹⁴⁷Ibid., 71.

¹⁴⁸Ibid., 72.

¹⁴⁹Ibid., 73.

¹⁵⁰Ibid., 74.

Table 4. Changes in Overall Helicopter Requirements from the ARI Design

Changes in Overall Helicopter Requirements Resulting from the Aviation Restructure Initiative Design			
Type of Helicopter	Army of Excellence Design	Aviation Restructure Initiative Design	
		Interim (2000-2027)	Objective (After 2027)
Combat Helicopters			
Light Attack and Scout	1,930	970	1,310
Heavy Attack	930	900	560
Subtotal	2,660	1,870	1,870
Transport Helicopters			
Utility	2,530	2,100	2,100
Cargo	520	460	460
Subtotal	3,050	2,560	2,560
All Helicopters			
	5,910	4,430	4,430

Source: Frances M. Lussier and United States Congressional Budget Office, *An Analysis of U.S. Army Helicopter Programs* (Washington, DC: Congress of the United States, Congressional Budget Office, 1996), 20.

Table 5. Type and Number of Aviation Units Assigned under the ARI Design

Type and Number of Aviation Units Assigned to the Army's Major Fighting Units Under the Aviation Restructure Initiative Design						
Unit	Attack Battalion		Cavalry Squadron	Utility Units		Medium Helicopter Company
	Heavy	Light		Assault CO	CMD or Support CO	
Corps	3	0	0	2	11	4
Division						
Heavy ^a	2	0	1	0	3	0
Light Infantry	0	1	1	2	1	0
Airborne	0	1	1 1/2	2	1	0
Air Assault	3	0	2	6	3	3
Armored Cavalry Regiment						
Heavy	2/3	0	1 1/2	1	0	0
Light	0	0	2	1	0	0

a. Armored or mechanized infantry

Source: Frances M. Lussier and United States Congressional Budget Office, *An Analysis of U.S. Army Helicopter Programs* (Washington, DC: Congress of the United States, Congressional Budget Office, 1996), 71.

Table 6. Number of Aviation Units under the AOE and ARI Design

Number of Aviation Units in the Army Under the Army of Excellence and Aviation Restructure Initiative Designs						
Force Design	Attack Battalion		Cavalry Squadron	Utility Units		Medium Helicopter Company
	Heavy	Light		Assault CO	CMD or Support CO	
Army of Excellence	40	5	24	54	32	26
Aviation Restructure Initiative	30	4	25	28	88	23

Source: Frances M. Lussier and United States Congressional Budget Office, *An Analysis of U.S. Army Helicopter Programs* (Washington, DC: Congress of the United States, Congressional Budget Office, 1996), 72.

Table 7. Differences of AOE and ARI design for Combat Aviation Units

Type and Number of Helicopters in Combat Aviation Units Under the AOE and ARI Design					
Unit	Attack Battalion		Scout	Utility Assault CO	Total
	Heavy	Light ^a			
Heavy Attack Battalion					
AOE	18 or 21 ^b	0	13	3	34 or 37
ARI without Comanche	24 ^c	0	0	0	24
ARI with Comanche	15	9 ^d	0	0	24
Light Attack Battalion					
AOE	0	12 or 21 ^e	13	3	28 or 37
ARI	0	24	0	0	24
Cavalry Squadron					
AOE	0	4 or 8 ^f	12	1	17 or 21
ARI without Comanche	0	16	0	0	16
ARI with Comanche	0	24	0	0	24

- a. The Comanche, a light attack and reconnaissance helicopter, is listed under light attack helicopters in this table.
- b. Depending on the type of helicopter available, heavy attack battalions include 18 Apaches or 21 Cobras.
- c. Nine of the attack helicopters will act as scouts for the other 15.
- d. Comanches will act as scouts for the heavy attack helicopters.
- e. Depending on the type of helicopter available, light attack battalions include 12 Kiowa Warriors or 21 Cobras.
- f. Depending on the type of helicopter available, cavalry squadrons include 4 Kiowa Warriors or 8 Cobras.

NOTE: AOE = Army of Excellence; ARI = Aviation Restructure Initiative

Source: Frances M. Lussier and United States Congressional Budget Office, *An Analysis of U.S. Army Helicopter Programs* (Washington, DC: Congress of the United States, Congressional Budget Office, 1996), 73.

Table 8. Difference of AOE and ARI design for Transport and Support Aviation Units

Type and Number of Helicopters in Transport and Support Aviation Units Under the AOE and ARI Designs				
Unit	Scout or Reconnaissance	Utility	Cargo	Total
Assault Battalion				
AOE	6	33 or 49	0	39 or 55
ARI ^a	0	41	0	41
General Support Aviation Battalion				
AOE ^b	12	24 or 32	0	36 or 44
ARI ^c	6	27	0	33
Medical Evacuation Company (AOE and ARI)	0	15	0	15
Medium-Helicopter Company (AOE and ARI)	0	0	16	16

a. Support unit in armored and mechanized infantry divisions.

b. Includes one assault company and one command company.

c. Includes two general support companies and one command company.

NOTE: AOE = Army of Excellence; ARI = Aviation Restructive Initiative

Source: Frances M. Lussier and United States Congressional Budget Office, *An Analysis of U.S. Army Helicopter Programs* (Washington, DC: Congress of the United States, Congressional Budget Office, 1996), 74.

The conflict episode variable of Operation Desert Storm led to many changes in Army Aviation through the ARI. The ARI made sweeping changes throughout Army Aviation based on the after action review comments of Operation Desert Storm. Furthermore, the ARI attempted to prepare Army Aviation for the 21st century fight through a more simplified version of the structure and composition of the Army's basic Aviation Units.

Doctrine was not a factor that led to Army Aviation organizational changes during this period. There was no informal or formal doctrine that made any significant changes to Army Aviation organizations.

Technology was not a factor that led to Army Aviation organizational changes during this decade. There were no major technological advances that significantly changed Army Aviation.

The Cold War caused significant Army Aviation organizational changes during this decade. The end of the Cold War led to a decrease in budget across the United States Army.

Army Aviation reduced its budget through the ARI. The ARI reduced the number of personnel, types of aircraft, and number of aircraft in the Army Aviation fleet.

Analysis: 2000-2010

The decade of 2000 to 2010 consisted of significant events that led to organizational changes in Army Aviation. The conflict episodes of Operation Enduring Freedom and Operation Iraqi Freedom resulted in major changes in Army Aviation organizations during this decade. The new doctrine, of more joint, modular, capability-based organizations was a major factor that gave rise to Army Aviation organizational changes. However, this new doctrine was based on the driving force of conflict episodes. The technological variable was not a factor that resulted in aviation organizational changes during this decade. Budget constraints also led to aviation organizational changes.

During this decade, aviation organizations changed to a more capable, deployable, and sustainable force at the Battalion level through the formation of the Multi-Functional Battalions. Subsequently, based on doctrine driven by conflict episode, Aviation Brigades transformed into Multi-Functional Aviation Brigades. The RAH-66 Comanche program was cancelled due to the changing threat environment and the evolving nature of future requirements. Finally, during this decade, Aviation Brigades transformed into CAB.

The AAMP of 2000 was based on the problems that arose from the conflict episode of TF Hawk and the vision of Army Chief of Staff at the time, General Erik K. Shinseki.¹⁵¹ Shinseki stated that the Army must be capable of providing an early entry force that could operate jointly, without access to fixed forward bases, and still have the power to win.¹⁵² The AAMP of 2000 made Army Aviation more capable, deployable, and sustainable at the Battalion level. The

¹⁵¹U.S. Army Aviation Center, *2000 Aviation Force Modernization Plan* (Fort Rucker, AL: Government Printing Office, March 2000), 11.

¹⁵²Erik K. Shinseki, General, United States Army, "Intent of the Chief of Staff, Army," 23 June 1999, 2.

AAMP recommended three main objectives. The first objective was to reduce Army Aviation to four types of helicopters: AH-64D Apache, RAH-66-Commanche, UH-60 Blackhawk, and the CH-47 Chinook.¹⁵³ The second objective was to equip the Active Component and Reserve Component with identical types of aircraft to make these units interchangeable.¹⁵⁴ The third objective was to reorganize both the Active Component and Reserve Component helicopter units into Multi-Functional Battalions.¹⁵⁵ Each of the Multi-Functional Battalions would consist of 10 RAH-66s, AH-64s, and UH-60s.¹⁵⁶

Army Aviation was again reorganized based on the concept of a modular based force. The Chief of Staff of the Army at this time, General Peter J. Schoomaker's, vision was the Army should be more a modular, capabilities-based unit designed for increased relevance and responsiveness.¹⁵⁷ The Multi-Functional Aviation Brigade was developed based on this vision. The Multi-Functional Aviation Brigades nearly doubled the aircraft and personnel in an Aviation Brigade.¹⁵⁸ The new Multi-Functional Aviation Brigades included both MEDEVAC and Chinook companies in the General Support Aviation Battalion.¹⁵⁹ Previously, the MEDEVAC and Chinook assets were outside the Aviation Brigade.

Numerous reasons caused the cancellation of the RAH-66 Comanche Program. The decision to end the Comanche Program was based on the changing threat environment and the

¹⁵³Williams, *A History of Army Aviation*, 319.

¹⁵⁴*Ibid.*

¹⁵⁵Anthony Jones, Major General, United States Army, "Aviation Modernization Strategy 2000 and Beyond," *Army Aviation*, May 2000, [http://www.quad-a.org/images/pdf/Army Aviation_MagazineArchive/MG_Jones/jones_may00.pdf](http://www.quad-a.org/images/pdf/Army_Aviation_MagazineArchive/MG_Jones/jones_may00.pdf) (accessed 14 August 2012), 2.

¹⁵⁶Bonin, "Army Aviation Becomes an Essential Arm," 423.

¹⁵⁷E. J. Sinclair, Brigadier General, United States Army, "Aviation Transformation: How Far Have We Come?" *Army Aviation*, November 2004, [http://www.quad-a.org/images/pdf/Army Aviation_MagazineArchive/BG_Sinclair/sinclair_nov04.pdf](http://www.quad-a.org/images/pdf/Army_Aviation_MagazineArchive/BG_Sinclair/sinclair_nov04.pdf) (accessed 14 August 2012), 1.

¹⁵⁸Williams, *A History of Army Aviation*, 325.

¹⁵⁹*Ibid.*

evolving nature of future requirements.¹⁶⁰ The resources from the Comanche Program were utilized for existing and future aviation programs that consequently allowed Army Aviation to meet current and future needs.¹⁶¹

The CAB were developed in order to provide a modular formation that allowed for a “plug and play” of units into task forces organized to support a myriad of contingency operations.¹⁶² The organizational structure of the CAB is similar to the organizational structure of the Multi-Functional Aviation Brigades. There are four types of CAB designs that can work directly with supported maneuver units as a brigade or by forming aviation task forces for specific mission for certain periods.¹⁶³ The four types of CAB are Heavy, Medium, Light, and Expeditionary CAB.¹⁶⁴

The variable of conflict episode was a major factor that led to Army Aviation organizational changes throughout the 2000 to 2010 decade. The AAMP of 2000 was based on the problems that arose from the conflict episode of TF Hawk and the vision of Army Chief of Staff at the time General Shineseki.¹⁶⁵ The AAMP created numerous changes in Army Aviation organization including the Multi-Functional Battalions. Furthermore, the conflict episodes of Operation Iraqi Freedom and Operation Enduring Freedom more than likely drove General Peter

¹⁶⁰E. J. Sinclair, Brigadier General, United States Army, “Posturing Army Aviation? Aviation Task Force Initiatives,” *Army Aviation*, May 2004, http://www.quad-a.org/images/pdf/ArmyAviation_MagazineArchive/BG_Sinclair/sinclair_may04.pdf (accessed 14 August 2012), 2.

¹⁶¹*Ibid.*

¹⁶²E. J. Sinclair, Brigadier General, United States Army, “Aviation Branch Chief Update,” *Army Aviation*, July 2006, http://www.quad-a.org/images/pdf/ArmyAviation_MagazineArchive/BG_Sinclair/sinclair_jul06.pdf (accessed 15 August 2012), 10.

¹⁶³U.S. Department of the Army, Field Manual (FM) 3-04.111, *Aviation Brigades* (Washington, DC: Government Printing Office, 2007), 1-4.

¹⁶⁴*Ibid.*

¹⁶⁵U.S. Army Aviation Center, *2000 Aviation Force Modernization Plan*, 11.

J. Schoomaker's vision that the Army should be more modular and capabilities-based.¹⁶⁶ The CAB was probably created to support a more modular force required for Operation Iraqi Freedom and Operation Enduring Freedom. Finally, the RAH-66 Comanche Program was more than likely cancelled in part because it did not meet the needs of the Global War on Terrorism for Army Aviation. In addition, the resources for the Comanche Program were direly needed to fund other Army Aviation programs that could more directly affect operations in Iraq and Afghanistan.

The variable of doctrine indirectly led to Army Aviation organizational changes during this decade. Army Chief of Staffs Shineseki and Schoomaker had their own visions for the Army. However, more than likely, these visions were directly driven due to the conflict episodes of TF Hawk, Operation Iraqi Freedom, and Operation Enduring Freedom.

The variable of technology was not a factor that led to Army Aviation organizational changes during this decade. The RAH-66 Comanche Program was cancelled during this decade. However, the RAH-66 Comanche was never fielded to Army Aviation Units. Consequently, the RAH-66 Comanche did not have any real impact on Army Aviation organizational changes.

The variable of budget constraints was a factor that led to aviation organizational changes during this decade. During implementation of the AAMP process, the cost repercussions of both the Multi-Functional Battalions and the cost of retiring and replacing the obsolete, Vietnam-era aircraft delayed the AAMP process. In addition, the RAH-66 Comanche Program was cancelled in part due to budget constraints of Army Aviation. Army Aviation had to prioritize requirements based on current and future conflict episodes. The Comanche Program was sacrificed in order to purchase and upgrade additional aircraft for Army Aviation.

¹⁶⁶Sinclair, "Aviation Transformation: How Far Have We Come?" 1.

Conclusions

This paper began by outlining the background and importance of Army Aviation organizational changes. This was followed by a literature review covering Army Aviation organizational changes and then outlined a methodology for the paper's research. The analysis consisted of six case studies of one decade each from the period of 1950s to 2010. The conclusions of this monograph are based on research conducted on the comprehensive material concerning Army Aviation. Some of the authors from source materials did not directly state what factor(s) led to Army Aviation organizational changes. Consequently, there were some subjective opinions from the author of the monograph as to the intents of authors of the primary sources of information concerning factor(s) that led to Army Aviation organizational changes.

Table 9 below provides information concerning the results of the analysis of factors that led to Army Aviation Organizational Changes. The green colored cells (+) denotes a factor during that decade that directly led to Army Aviation organizational changes. The yellow colored cells (-) denotes a factor during that decade that indirectly led to Army Aviation organizational changes. The red colored cells (x) denotes a factor that decade that did not lead to Army Aviation organizational changes.

Table 9. Results of Analysis of Factors that Led to Aviation Organizational Changes

	Conflict Episode	Doctrine	Technology	Cold War	Budget Constraints
1950-1960	+	-	-	x	x
1960-1970	+	-	x	+	x
1970-1980	+	x	+	+	-
1980-1990	-	-	+	+	-
1990-2000	+	x	x	+	-
2000-2010	+	-	x	x	-

Legend

+	Direct
-	Indirect
x	None

Source: Created by author.

The variables of conflict episodes and the Cold War overall directly led to Army Aviation organizational changes. The variables of doctrine, technology, and budget constraints overall indirectly led to Army Aviation organizational changes.

As crises caused innovation, conflict episodes and existential threats created transformation in Army organizations. According to Table 9, conflict episodes directly led to Army Aviation organizational changes with the exception from 1980 to 1990. The United States was involved in conflict episodes during the decade of 1980 to 1990 such as the invasion of Grenada in 1983, and the invasion of Panama in 1989. However, neither of these conflict episodes led to Army Aviation organizational changes. The Arab-Israeli War in 1973 indirectly led to Army Aviation organizational changes during the decade of 1980 to 1990. The Korean War (1950-1960 decade), the Vietnam War (1960-1980 decades), Operation Desert Storm (1990-2000 decade), Operation Iraqi Freedom and Operation Enduring Freedom (2000-2010 decade) are clear

examples of conflict episodes that directly led to Army Aviation organizational changes. Some conflict episodes that have not involved the United States have also influenced U.S. Army Aviation organizational changes such as the Arab-Israeli War in 1973, and the Malayan Emergency.

The existential threat of the Cold War directly drove doctrine and technology to change the organization of Army Aviation. According to Table 9, the Cold War directly led to Army Aviation organizational changes with the exception of the decades from 1950 to 1960 and 2000 to 2010. The Cold War was not a factor during the 1950 to 1960 decade because tensions between the U.S. and the Soviet Union did not affect Army Aviation until the 1960s to 1970s. The Cold War was not a factor during the decade of 2000 to 2010 because the Soviet Union dissolved in 1991. The Cold War led to the Howze Board in the decade of 1960 to 1970. The Cold War also led to the need for attack helicopters to destroy tanks in a mid-intensity conflict in Europe. Without conflict episodes or existential threats (Cold War), it seems more than likely that Army Aviation organization would not have changed, or may have changed at a much slower rate during the decades of 1960 to 2000.

Conflict episodes and existential threats were the factors that drove other doctrine and technology to Army Aviation organizational changes. As shown in Table 9, for four decades doctrine was an indirect factor that led to Army Aviation organizational changes. In addition, for two decades doctrine was not a factor that led to Army Aviation organizational changes.

Doctrine was propelled by the direction and policies of the U.S. government at that time. Concepts such as the AOE and Air Land Battle were fueled by conflict episode/existential threat. These concepts led to informal and formal doctrine, which led to Army Aviation organizational changes. Informal doctrine such as airmobility and suppressive concepts arose from the after action reviews of the Korean War and the foreseeable requirements for the Vietnam War.

There have been some remarkable technological advances in helicopters over the past 60 years such as the development of the UH-1, AH-1, UH-60, CH-47, OH-58D and the AH-64D.

According to table 9, the variable of technology directly led to Army Aviation organizational changes during the decades of 1970 to 1980 and 1980 to 1990. During the 1970s to 1980s the technological advances of an advanced air defense threat and new modernized helicopters created the ARCSA III study. In addition, the lethality of the AH-1 decreased the number of attack helicopter requirements in an Attack Company. During the 1980s to 1990s, fewer modernized helicopters were needed to accomplish the mission set of older helicopters. The number of aircraft in the Heavy Attack Battalion, Light Attack Battalion, or Cavalry Squadron depended on whether the advanced AH-64 Apache, the OH-58 Kiowa, or the older AH-1 Cobras were utilized. The number of aircraft in the Assault Battalion depended on whether the advanced UH-60 Blackhawk or the older UH-1 Huey were utilized. With the exception of the period from 1970 to 1990, the variable of technology was not a factor that led to Army Aviation organizational changes. As stated before, the variable of technology has been in support of conflict episodes and existential threats.

In some instances, doctrine drove technology. During the 1950s to 1960s, new doctrine such as the airmobility and suppressive fire concepts could not have changed Army Aviation unless the proper technology was developed first. The airmobility concept needed a helicopter that was troop-carrying capable. The suppressive fire concept needed the technological means of an armed helicopter. Consequently, new technology was needed in order for doctrine to change Army Aviation organizational structures.

The variable of budget constraints indirectly led to Army Aviation organizational changes. According to table 9, budget constraints indirectly led to Army Aviation organizational changes with the exception of the decades from 1950 to 1960 and 1960 to 1970. During the aforementioned two decades, the variable of budget constraints were not mentioned in any of the research material found for this monograph. However, it is logical to conclude that the budget always has an affect on major decisions concerning military organizational changes. What is difficult to ascertain specifically for the decades of 1950 to 1960 and 1960 to 1970, is to what

degree of impact did budget constraints affect the military organizations. Throughout the research in the six case studies, budget constraints, at least indirectly, seemed to be an underlying factor in the determination of Army Aviation organizations. An example of this is during the 1980s to 1990s, one of the main goals of the AAMP of 1988 was to decrease the number of aircraft in the inventory in order to save money. Furthermore, during the decade of 2000 to 2010, the RAH-66 Comanche Program was cancelled in part due to budget constraints of Army Aviation. Simply put, in order to increase the size of an organization, introduce a new aircraft, and update a new aircraft (which the Army does most often), it costs money. The military is always in a resource-constrained environment. Consequently, budget constraints will always at least indirectly influence Army Aviation organizations.

The primary goal of this study is to investigate the research question of what factors led to organizational changes in U.S. Army Aviation helicopters. The study of the changes in force structure in Army Aviation is historically important. While Army Aviation should develop their organizational structure based on future requirements, the past often provides insights for a vision for the future. Conflict episodes, doctrine and technology are common variables that most people would consider led to Army Aviation organizational changes. The analysis of this monograph explains that conflict episodes are the major motivating entity that led to Army Aviation organizational changes. Conflict episodes most often force changes in formal/informal doctrine as well as technology in order to make Army Aviation organizational changes. Unlike the other variables, the Cold War is a singular event in U.S. history that influenced Army Aviation and the organizations and the U.S. military from 1960 to 2000. Budget constraints will always affect Army Aviation organizations and the military as a whole because the world lives in a resource-limited environment.

This research is important to the community of Army Aviation because it shows that conflict episodes coupled with singular events such as the Cold War are the major driving forces for Army Aviation organizational changes. Relevant to current times, the Global War on Terror

which includes Operation Iraqi Freedom and Operation Enduring Freedom, like the Cold War, will probably influence U.S. military organizational changes for decades to come whether directly or indirectly. As in the past, future conflict episodes will drive Army Aviation organizational changes.

Further research can be conducted on the interrelationship of budget constraints and changes in Army organizations. The military budget is generally determined by domestic politics, not necessarily based on the requirements of current or foreseeable conflict episodes. An example of this occurrence is the 2012 military budget has been significantly decreased. However, there is also currently the ongoing conflict episode of Operation Enduring Freedom and the requirement to reset equipment that has been degraded during the past 10 years of persistent conflict that provides justification for an increase of the military budget. Consequently, it is counterintuitive to decrease the military budget during an ongoing conflict episode and when military equipment needs to be reset.

Bibliography

- Bonin, John A. "Army Aviation Becomes an Essential Arm: From the Howze Board to the Modular Force 1962-2004." Dissertation, Temple University, May 2006.
- Bradin, James W. *From Hot Air to Hellfire: The History of Army Attack Aviation*. Novato, CA: Presidio, 1994.
- Center of Military History. *The U.S. Army in Vietnam*. Washington, DC: Center of Military History, American Military History, 1989.
- Davidson, Janine. *Lifting the Fog of Peace: How Americans Learned to Fight Modern War*. Ann Arbor, MI: University of Michigan Press, 2010.
- Demma, Vincent H. *Department of the Army Historical Summary, Fiscal Year 1989*. Washington, DC: Center of Military History, 1998. <http://www.history.army.mil/books/DAHSUM/1989/CH11.htm> (accessed 14 August 2012).
- Evera, Stephen Van. *Guide to Methods for Students of Political Science*. Ithaca, NY: Cornell University Press, 1997.
- Everett-Heath, John. *Helicopters in Combat: The First Fifty Years*. London: Arms and Armor, 1992.
- Hall, Major George R., Major Russell H. Smith, Major Lewis D. Ray, and Captain Lloyd McCammon. "ARCSA III." *U.S. Army Aviation Digest* 23, no. 7 (July 1977): 2-3, 17-19.
- Headquarters, Department of Defense. *Defense Budget Priorities and Choices*. Washington, DC: Government Printing Office, January 2012.
- Headquarters, U.S. Army Combat Developments Command. Technical Manual 17-387T (Tentative) (Experimental), *Attack Helicopter Company*. Fort Belvoir, VA: Government Printing Office, 1972.
- "Implications of the Middle East War on U.S. Army Tactics, Doctrine, And Systems." In Selected Papers of General William E. DePuy. The William E. DePuy Papers. Command History Office. U.S. Army Training and Doctrine Command, Fort Monroe, VA, 1 July 1973.
- Jones, Anthony, Major General, United States Army. "Aviation Modernization Strategy 2000 and Beyond." *Army Aviation*, May 2000. http://www.quad-a.org/images/pdf/ArmyAviation_MagazineArchive/MG_Jones/jones_may00.pdf (accessed 14 August 2012).
- Lussier, Frances M., and United States Congressional Budget Office. *An Analysis of U.S. Army Helicopter Programs*. Washington, DC: Congress of the United States, Congressional Budget Office, 1996.
- Merryman, James H. "Air Cavalry Attack Brigade." *U.S. Army Aviation Digest* 25, no. 11 (November 1979): 2-5.
- Romjue, John L. *The Army of Excellence: The Development of the 1980s Army*. TRADOC Historical Monograph Series. Fort Monroe, VA, 1993.
- Shinseki, Erik K., General, United States Army. "Intent of the Chief of Staff, Army." 23 June 1999.
- Sinclair, E. J., Brigadier General, United States Army. "Aviation Branch Chief Update." *Army Aviation*, July 2006. http://www.quad-a.org/images/pdf/ArmyAviation_MagazineArchive/BG_Sinclair/sinclair_jul06.pdf (accessed 15 August 2012).

- . “Aviation Transformation: How Far Have We Come?” *Army Aviation*, November 2004. http://www.quad-a.org/images/pdf/ArmyAviation_MagazineArchive/BG_Sinclair/sinclair_nov04.pdf (accessed 14 August 2012).
- . “Posturing Army Aviation? Aviation Task Force Initiative.” *Army Aviation*, May 2004. http://www.quad-a.org/images/pdf/ArmyAviation_MagazineArchive/BG_Sinclair/sinclair_may04.pdf (accessed 14 August 2012).
- Sloniker, Michael E., Captain, and Captain Gary R. Sosnowski. “Attack.” *U.S. Army Aviation Digest* 22 (December 1976): 4-5, 11-15.
- Tolson, John J. *Airmobility 1961-1971*. Washington, DC: Government Printing Office, 1973.
- U.S. Army Aviation Center. *2000 Aviation Force Modernization Plan*. Fort Rucker, AL: Government Printing Office, March 2000.
- . *Aviation Requirements for the Combat Structure of the Army (ARCOSA) IV, Final Report*. Fort Rucker, AL: Government Printing Office, 22 February 1985.
- U.S. Department of the Army. Field Manual (FM) 1-02, *Operational Terms and Graphics*. Washington, DC: Government Printing Office, 2004.
- . Field Manual (FM) 3-04.111, *Aviation Brigades*. Washington, DC: Government Printing Office, 2007.
- . Field Manual (FM) 17-50, *Attack Helicopter Operations*. Washington, DC: Government Printing Office, 1984.
- . *General Orders No. 6*. Washington, DC: Department of the Army, 15 February 1984. <http://www.history.army.mil/documents/misc/dago6-84.htm> (accessed 12 August 2012).
- . Table of Organization and Equipment 17-111, *Attack Helicopter Company*. Washington, DC: Government Printing Office, 15 September 1970.
- United States Army Aviation. “We’re a Branch!” *U.S. Army Aviation Digest* 29, no. 4 (April 1983): 42.
- Vanderpool, Jay D., Colonel (Ret). “We Armed the Helicopter.” *U.S. Army Aviation Digest* 17, no. 6 (June 1971): 2-6, 24-29.
- Westmoreland, William C. “Honoring Army Aviators.” Address given at the Army Aviation Association of America Annual Meeting, Washington, DC, November 1, 1968. In “Addresses by General William C. Westmoreland,” William C. Westmoreland, Chief of Staff, United States Army, vol. 1, 3 July 1968 to 28 January 1969. Washington, DC.
- Wheeler, Howard A. *Attack Helicopters: A History of Rotary-Wing Combat Aircraft*. Baltimore, MD: Nautical and Aviation Publication Co. of America, 1987.
- Williams, James W. *A History of Army Aviation, from its Beginnings to the War on Terror*. New York: iUniverse, 2005.