

USAWC STRATEGY RESEARCH PROJECT

**ARMY TRANSFORMATION -- ASSESSING  
THE IMPLICATIONS ON SIGNAL ORGANIZATIONS**

by

Lieutenant Colonel John Schleifer  
United States Army

Colonel Henry St. Pierre  
Project Advisor

This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The U.S. Army War College is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools, 3624 Market Street, Philadelphia, PA 19104, (215) 662-5606. The Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.

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

# Report Documentation Page

Form Approved  
OMB No. 0704-0188

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

1. REPORT DATE <b>18 MAR 2005</b>		2. REPORT TYPE		3. DATES COVERED -	
4. TITLE AND SUBTITLE <b>Army Transformation Assessing the Implications on Signal Organizations</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) <b>John Schleifer</b>				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>U.S. Army War College, Carlisle Barracks, Carlisle, PA, 17013-5050</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT <b>See attached.</b>					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES <b>34</b>	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			



## ABSTRACT

AUTHOR: Lieutenant Colonel John M. Schleifer  
TITLE: Army Transformation – Assessing the Implications on Signal Organizations  
FORMAT: Strategy Research Project  
DATE: 18 March 2005      PAGES: 34      CLASSIFICATION: Unclassified

For the foreseeable future, there is simply no end in sight to the rotation of forces into and out of combat zones. Army active and reserve units at the tactical level today are either coming out of combat, refitting, or preparing to deploy. Unlike World War II and Desert Storm, there is no longer an opportunity to reorganize after the war is over. Although the Army is decisively engaged, it still must conduct an effective transformation plan that meets the goals and policies established by national strategy. In transforming the Army, we must ensure that we “get it right” or the consequences could be drastic for the soldiers on the battlefield.

The purpose of this strategy research project will be to assess the impact that the Army’s Transformation Plan will have on the Signal Corps organizations as the Army converts Division and Corps organizations to modular Units of Action and Units of Employment.



## TABLE OF CONTENTS

ABSTRACT.....	iii
PREFACE.....	vii
LIST OF ILLUSTRATIONS .....	ix
ARMY TRANSFORMATION – ASSESSING THE IMPLICATIONS ON SIGNAL ORGANIZATIONS .....	1
<b>TRANSFORMATION</b> .....	<b>1</b>
NATIONAL GUIDANCE.....	<b>2</b>
ARMY TRANSFORMATION .....	<b>3</b>
<b>Transformed Culture</b> .....	<b>3</b>
<b>Transformed Processes</b> .....	<b>4</b>
<b>Transformed Capabilities</b> .....	<b>5</b>
<b>Army Transformation Issues and Concerns</b> .....	<b>8</b>
<b>SIGNAL TRANSFORMATION</b> .....	<b>9</b>
HISTORY.....	<b>9</b>
UA AND UEX MODULAR SIGNAL DESIGNS .....	<b>13</b>
ANALYSIS OF CAPABILITIES .....	<b>15</b>
<b>CONCLUSIONS AND RECOMMENDATIONS</b> .....	<b>17</b>
ENDNOTES .....	19
BIBLIOGRAPHY .....	23



## PREFACE

There are many people that I would like to thank for their assistance in completing this project. First, I would like to thank COL Hank St. Pierre for his guidance and suggestions in editing and writing the paper. I would also like to personally thank my friends and former comrades in the 4<sup>th</sup> Infantry Division for their frank insights concerning their ongoing transformation to modular units. Finally, I would like to thank my family for their patience and support.



LIST OF ILLUSTRATIONS

FIGURE 1.....6  
FIGURE 2.....7  
FIGURE 3.....11  
FIGURE 4.....12  
FIGURE 5.....13  
FIGURE 6.....14



## ARMY TRANSFORMATION – ASSESSING THE IMPLICATIONS ON SIGNAL ORGANIZATIONS

In a speech at the Citadel in December, 2001, President George W. Bush stated: “The need for military transformation was clear before the conflict in Afghanistan and before September the 11th... What’s different today is our sense of urgency – the need to build this future force while fighting a present war.”<sup>1</sup>

For the near future, there is simply no end in sight to the rotation of forces into and out of combat zones – if you are in an active or reserve Army unit at the tactical level today, you are either coming out of combat, or preparing to deploy.<sup>2</sup> In order to defeat the threats posed by the contemporary operating environment, the United States Army needs to expedite an effective transformation plan.

The purpose of this paper is to assess the challenges that signal organizations face as they transform to a modular design. My approach will be to first look at the transformation efforts of the Army as it relates to the National Security Strategy and National Military Strategy of the United States of America. I will then examine the signal corps organizations at the UA and UE level and assess the impact it may have on their ability to provide the command, control, communications, intelligence, surveillance reconnaissance (C4ISR) systems which enable the Unit of Action (UA) and Unit of Employment (UE) commanders to conduct decisive combat operations.

### TRANSFORMATION

Just what is transformation? It depends on who you ask. Vince Crawley of Defense News says it is a catch-all term for describing revolutionary changes in how the U.S. military conducts its operations and equips its people.<sup>3</sup> According to a Tom Ricks article in the *Washington Post* titled, *Scope of Change in the Military is Ambiguous: Transformation to Some Appears Minor to Others*, it is nothing more than a buzz-word. The problem with transformation is that there is not a clear understanding within the Department of Defense on what the term really means.<sup>4</sup> While all of the services are conducting transformation efforts, there is still much debate about how these efforts will radically change the force structure of their respective services.<sup>5</sup> The Department of Defense in an effort to resolve these issues defines transformation as: “a process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people and organizations that exploit our nation’s advantages and protect against asymmetric vulnerabilities to sustain our strategic position, which helps underpin peace and stability in the world.”<sup>6</sup>

## NATIONAL GUIDANCE

The National Security Strategy (NSS) of the United States places great emphasis on transformation by devoting one of its nine chapters to “Transform America’s National Security Institutions to Meet the Challenges and Opportunities of the Twenty-First Century.”<sup>7</sup> The NSS states that the military’s number one priority is to defend the United States and to do so effectively it must: assure our allies and friends; dissuade future military competition; deter threats against U.S. interests, allies and friends; and decisively defeat any adversary if deterrence fails.

Realizing that the armed forces of the United States were designed to fight and defeat a large Cold War force, the NSS directed transformation of the services in order to “focus more on how an adversary might fight rather than where and when a war might occur.”<sup>8</sup>

The recently published 2004 National Military Strategy (NMS), as well as the unpublished National Defense Strategy (NDS) support the aims of the NSS. They describe the services plan to achieve military objectives in the near term and provides the vision to ensure they remain decisive in the future.<sup>9</sup> According to General Richard B. Myers, the Chairman of the Joint Chiefs of Staff, success rest on three priorities: winning the War on Terrorism; enhancing our ability to fight as a joint force; and transforming the Armed Forces. Transformation will be done in stride – by fielding new capabilities and adopting operational concepts while simultaneously taking the fight to the terrorists.<sup>10</sup>

The Pentagon’s Office of Transformation published the Department of Defense (DOD) Transformation Planning Guidance (TPG) in April 2003. The TPG is the DOD’s implementation strategy to transform based upon requirements of the Quadrennial Defense Review of September 2001. It identifies the critical elements for transformation, assigns roles and responsibilities for promoting transformation, and describes how the Department will organize to implement transformational capabilities. The TPG process is based upon implementing the four transformation pillars identified in the QDR – strengthening joint operations, exploiting U.S. intelligence advantages, concept development and experimentation, and developing transformational capabilities. The TPG also depicts the outcome the services must achieve in transforming its forces: fundamentally joint, network-centric, distributed forces capable of rapid decision superiority and massed effects across the battlespace.<sup>11</sup>

A key component of the TPG is that it assigns the Secretaries of the Military Departments and the Service Chiefs of Staff the responsibility for developing specific concepts for supporting operations and core competencies. They will oversee experimentation, modify supporting

concepts accordingly, and build transformation roadmaps to achieve transformational capabilities to enable those concepts.<sup>12</sup>

## ARMY TRANSFORMATION

The 2004 Army Transformation Roadmap (ATR) is the Army transformation strategy prepared to fulfill the requirements outlined in the TPG. It is a document that is fully integrated with the strategic mandates established in the NSS, NMS and TPG. The ATR details Army actions to identify and build capabilities now, improve joint operations by the current forces while at the same time developing future force capabilities that are essential to providing a relevant and ready joint land power. The Army Transformation Strategy has three key components: transformed culture, transformed processes, and transformed capabilities.<sup>13</sup>

### **Transformed Culture**

The first component of the ATR, Transformation of the Army Culture through innovative leadership and adaptive institutions, begins by changing the thinking and behavior of the people in the Army, and leaders ultimately shape the behavior of the soldiers. For innovation to succeed, the senior leadership must forge a consensus on the future of the military, through strength of will and strength of ideas. For a number of reasons innovation has usually met with strong resistance.<sup>14</sup>

The Army is having a serious issue with getting its strategic communication message on transformation out to its people. What is Army Transformation? What do we mean by transformation? Is it just the phrase-of-the-day, or a buzz word to obtain funding for modernization programs of the military services? These questions, and others similar to them, have come off of the lips of large numbers of soldiers and officers as they are told to execute programs that they have had little to no input into designing. In short, they are being told to simply make it happen without understanding why they are doing so. John P. Kotter in *Leading Change* states: "Major change is usually impossible unless most employees are willing to help, often to the point of making short term sacrifice....without credible communications, and lots of it, employees' hearts and minds are never captured."<sup>15</sup>

David Walker in *Defense Transformation: A Battle the U.S. Cannot Afford to Lose* points out that cultural transformation depends on having a compelling mission and vision. The goals and objectives should be tied to a strategic plan. Successful transformation is dependent upon an effective two-way communication system with a frequently used, consistent, central message that is effectively communicated at all levels of the organization. Listening and responding to the concerns and comments of the soldiers is particularly important during transformation.<sup>16</sup>

Getting the message to the field so that soldiers can understand the mission and vision of the Army to obtain their buy-in on the transformation effort will continue to be a challenge but we have recently seen positive improvements. During the past 6 months the Army released its annual Army Posture Statement, a *Serving a Nation at War* pamphlet, and several other documents that provide a clear strategic communications message. The responsibility now falls on the commanders to ensure the message gets down to the lowest level.

### **Transformed Processes**

The Second component of the ATR, Transformation of the Processes involves changing the way Army does business every day. Instead of developing Army only programs and capabilities, the Army is working with the other services towards inherently Joint programs and capabilities that support joint operational concepts. Transforming the processes will enable the Army to develop a future force with characteristics that embody the Joint Force attributes identified to become full spectrum dominant – become increasingly integrated, expeditionary, networked, decentralized, adaptable, decision superior, and lethal.<sup>17</sup>

The Army seeks to transform through the interaction of constantly evolving capabilities between the current force and the future force. This is a difficult task with the current forces decisively engaged around the globe as part of a joint team. While developing its future force, the Army is able to capture lessons learned and simultaneously accelerates select capabilities to enhance as quickly as possible the responsiveness, and readiness, of current force capabilities.

So why is the Army changing while engaged in combat? Perhaps because the combat environment is often the best environment to prove what works and what does not. Douglas Macgregor in *Transformation Under Fire* says, “Combat accelerates change by moving it out of the realm of academic debate and endless speculation and into the pragmatic approach focused on fielding new capabilities within new combat formations because these capabilities and forces are needed now.”<sup>18</sup>

The ability of the American soldier to “get it right” in combat has been proven throughout the Army’s storied history, time and time again, soldiers have adapted in combat to overcome adversity. Michael Doubler in *Closing With the Enemy* points out that during World War II, it did not take long for commanders in the European Theater of Operations to realize that the best peacetime training programs have distinct limits in preparing soldiers for battle. No matter how rigorous or thorough the training was, it could not realistically simulate battlefield conditions. Leaders had to learn how to maintain command, control and communications while keeping

their soldiers moving despite the paralysis of fear and confusion and a hail of enemy shot and shell. In peacetime exercises soldiers often moved together rapidly in mock attacks, the exact opposite was true in real combat. The tempo was much slower, single attacks often took hours instead of minutes. For small unit actions, detailed planning achieved success more effectively than esprit or adrenaline.<sup>19</sup>

Today's soldier is no different from yesterday's soldier in that they understand what they need to improve their ability to conduct combat operations. The good news is the Army is listening to them. Instead of delaying transformation, the combat operations in Iraq and Afghanistan have actually forced the Army to field equipment at an accelerated rate based on operational necessity. "For example, at one point the Army had no tactical or small unmanned aerial vehicles (UAV) deployed to Iraq or Afghanistan, and no method to counter improvised explosive devices (IED). Since May 2003, 35 small UAVs and 432 devices to counter the IEDs have been deployed into theater."<sup>20</sup>

Conducting small unit operations in dense urban areas has placed such a high premium on force protection that the Army has addressed this issue by changing priorities from big ticket items to projects that support the individual soldier and his immediate gear. The procurement of body armor, armored high-mobility multipurpose wheeled vehicles, new weapons, and a myriad of other items through rapid fielding initiatives have had a significant impact on improving conditions for soldiers on the ground.<sup>21</sup> These initiatives would have taken considerably longer to implement in a peacetime Army.

Transformation of the processes is about changing the way the Army does business on a day to day basis. It also entails joint collaboration with other services in conducting experimentation, analysis, and capabilities assessment to develop joint capabilities that support joint operational concepts. This is a smart business practice that reduces risk to the current force and provides greater force capabilities per dollar.<sup>22</sup>

### **Transformed Capabilities**

The third and final component of ATR is building transformational capabilities for Interdependent Joint Operations through force transformation. Force transformation is a sweeping reorganization of the force into "modular" units that are designed to be more deployable, survivable, self sufficient combat teams capable of operating over extended distances, autonomously, or combining with other Army and joint forces. Improvements in the communications network will provide unprecedented levels of situational awareness by integrating communications, sensors, battle command systems as well as manned and

unmanned reconnaissance and surveillance systems. Immediate, and uninterrupted, access to this network is critical for it is what will enable a commander to tie all of his capabilities together and enhance his ability see first, act first, and finish decisively. This will require a change in culture in that the commanders have to trust that “things” will be there. Transforming capabilities has also developed initiatives to stabilize soldiers for longer periods of time in the same unit to increase readiness and cohesion. It also includes an effort to “rebalance” the capabilities found with the active duty and the reserves to produce more units with skill in the highest demands and reduce stress on units repeatedly deployed to combat zones<sup>23</sup>

In order to meet the challenges of today the Army is changing its basic fighting formation from a division to a brigade. It is also making changes in the numbers of echelons as shown in figure 1. Instead of having a Army Service Component Command (ASCC), a Corps, a Division, and a Brigade, the Army’s echelons will consist of a Brigade Combat Team Unit of Action (UA), a Unit of Employment x (UE<sub>x</sub>) (about a division), and a UE<sub>y</sub> (about a Corps or ASCC). This eliminates redundancy in command structure and frees up personnel for use in other areas.

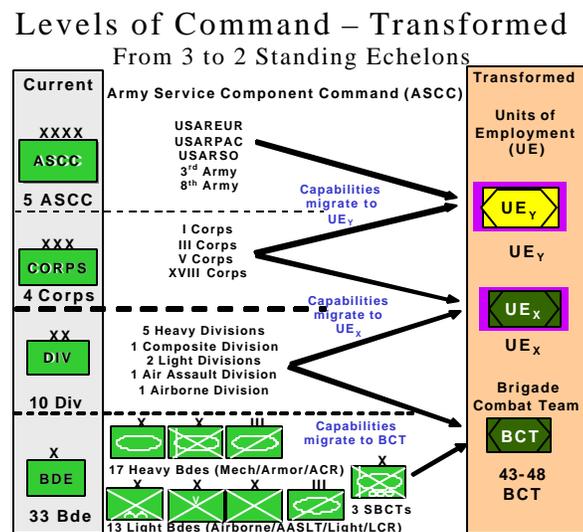


FIGURE 1.

The intent of this transformed Army is to create a modular force whose capabilities can be tailored to respond to regional combatant commanders’ needs, better employ joint capabilities, facilitate force packaging and rapid deployment, and fight as an autonomous unit (linked by the Network) in a nonlinear, noncontiguous battlespace.<sup>24</sup> Modularity is, in essence, a

reorganization of Brigade and Division and level units into smaller and presumably more capable organizations.

The 3<sup>rd</sup> Infantry Division (3ID) is the first division to undergo conversion to a modular design where three brigades are being restructured into four rapidly deployable UAs. Each UA, equipped with its own enablers, is capable of conducting limited independent operations and, with augmentation, of being a joint task force, or it can be task organized and integrated into another service.<sup>25</sup> Figure 2 depicts the reorganization of a mechanized division.

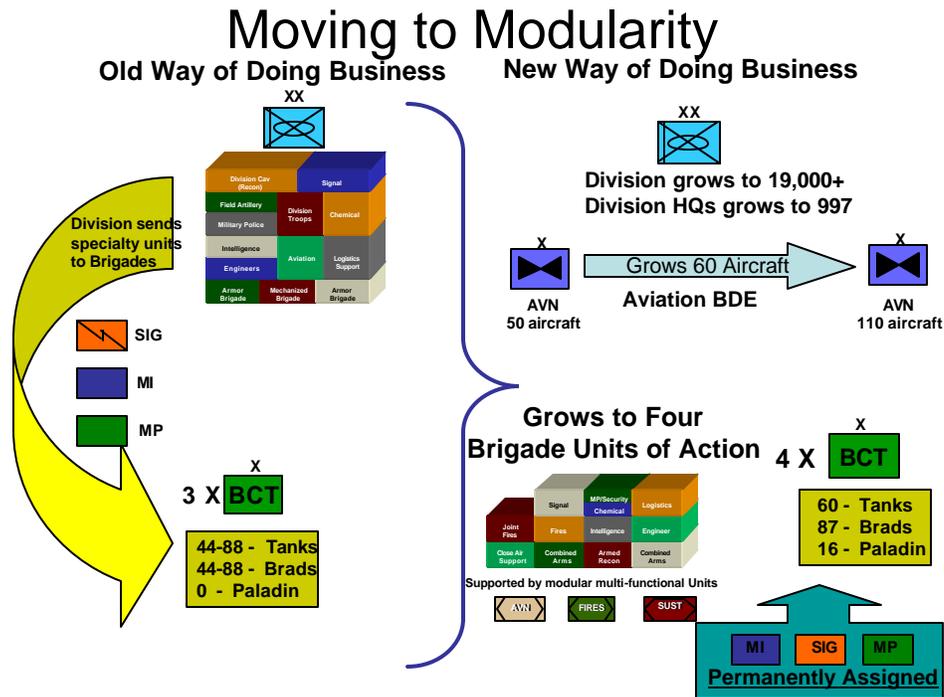


FIGURE 2.

In addition to 3ID, three other active divisions that just returned from combat operations are currently undergoing conversion to modularity in an effort to increase the number of UAs throughout the Army. The goal is to increase the number of brigade UA size formations from the current 33 to 43 (with a possibility of adding 5 more in the future). These additional UAs will allow the Army to sustain a protracted deployment operational tempo with better rotation capability, greater predictability in current units, increased readiness, and better stabilization and predictability for families.

According to Retired Army Colonel Robert Killebrew in *It is a Daunting Time to be a Soldier*, what we are seeing is a return to the past:

The Army brigades historically have been designed as task-organized, temporary groupings of battalions and combat support formations under a colonel. The new design will be toward the smaller, more self-contained and permanent brigade combat team (BCT), a title evocative of the regimental combat team of World War II. The division headquarters will become smaller and more deployable, which derives from recent division experience as the base force for increasingly varied joint, interagency, and multinational operations.<sup>26</sup>

As the Army transforms to these modular organizations it has been able to convert the current Brigade Combat teams to the UA Brigade Combat Teams with relative ease because these formations are almost identical to the task organized, habitual support relationships that have been established for years to facilitate coordination and complete tasks for missions ranging from Division Ready Brigade, to National Training Center Rotations, Warfighter Exercises, or even actual combat.

In changing the organizational structure of its formations, the Army must be cautious not repeat the mistakes of its history by altering its doctrine and changing simply for the sake of change. This was the case with the Pentomic division design of the 1950s, where the Army in an effort to meet the perceived needs of the nuclear battlefield completely reequipped and reorganized its forces in an attempt to avoid institutional irrelevance. The change to a pentomic design caused major problems for the Army. It failed because it was based upon perceived needs, not widely supported by the leadership in the Army, and not properly funded.<sup>27</sup>

#### **Army Transformation Issues and Concerns**

There are numerous concerns from the field associated with the transformation to UAs and UEs. While the restructuring creates more infantry and armor battalions per division, these units are smaller and less capable than the current ones. Retired Colonel Macgregor recently stated in an editorial to the *Washington Times*: "It's like doubling the size of the number of divisions in the German Army for the 1941 attack on Russia by halving the size of each panzer division. The Army becomes less capable with more unneeded overhead and additional support troops inside weaker divisions."<sup>28</sup>

MacGregor's argument is probably a bit exaggerated; a modular UA in 3ID, enabled with increased capabilities, is certainly more capable than the old, task organized, BCT that fought as part of the 3ID in Operation Iraqi Freedom because of their increased access to the network to tie all of the capabilities together.

One could also argue that a heavy UA is less capable than the task organized BCTs of a digitized division found in 4ID which had 3 maneuver battalions, an artillery battalion, an engineer battalion, a forward support battalion, a military intelligence company, an air defense company, and a signal slice. The reduction in capability per UA is so slight that it is offset by having an additional UA headquarters. In addition to these concerns, key command and control organizations including the Signal and Military Intelligence battalions are eliminated at the UE level and the companies that were associated with them are placed in the UA organization.

The Army's efforts to change the culture, the processes, and the capabilities of the Army in order to transform from a Cold War based contingency force to a capability based joint force is a major effort. As new units are stood up from scratch, units are deactivated and their personnel, equipment, and capabilities are transferred across the UEx they will face many challenges. Combat support and combat service support units are no exception. I will now assess the impact on Signal organizations as they convert to modular design.

### **SIGNAL TRANSFORMATION**

The Army White Paper, *Serving a Nation at War: A Campaign Quality Army with Joint and Expeditionary Capabilities* stresses the importance of network enabled operations as a force multiplier:

The operational advantages of shared situational awareness, enhanced speed of command, and the ability of forces to self-synchronize are powerful. In this light, we must change the paradigm in which we talk and think about the network; we must fight rather than manage the network, and operators must see themselves as engaged at all times, ensuring the health and operation of this critical weapon system.<sup>29</sup>

In attempting to assess the capabilities that signal organizations will provide UA and UE level commanders it is important to first take a look at how signal organizations have evolved over the Army's history.

### **HISTORY**

During World War II, each division in the Army was assigned a signal company and had a Lieutenant Colonel as the division communications staff officer. Corps were supported with a signal battalion and Signal Corps Colonel as the staff officer.<sup>30</sup> Early in the war, General Marshall told his Chief Signal Officer, General Olmstead that he believed communications constituted, together with fire power and mobility, an attribute of command and should therefore remain under the direct control of a commander in the field.<sup>31</sup> The more vital the communications and the more complex the equipment, the greater was the need to have skilled

signal soldiers to accomplish the mission. "And among these troops the old Signal Corps catchwords of "Getting the message through", was often a matter of fighting it through."<sup>32</sup>

In 1957 the Army reorganized its triangular divisions into pentomic divisions consisting of five battle groups that were structured to operate independently or concentrate for a major attack. These leaner divisions were intended to meet the demands of the modern atomic battlefield and engage in combat over a widely dispersed front. Technological advances, coupled with a significant growth in communications requirements to enable command and control of the dispersed pentomic division, resulted in the division signal company expanding to a battalion size organization with battalion commander being dual hatted as Division Signal Officer..<sup>33</sup>

This basic signal structure remained virtually unchanged for over 40 years as the Army transitioned to the Reorganization Army Division (ROAD) and then to the Army of Excellence Division. The Division Signal Officer was represented on the staff by a Major – the Assistant Division Signal Officer (ADSO). The increase in the use of automation devices, packet switching, and the introduction of the Maneuver Control System (MCS) as a command and control tools saw the Division Automation Officer (DAMO) position and his staff moved from under the G3 to the Division Signal Office around 1993. The ADSO and DAMO provide communications and automation planning and support to the division. They coordinate with the other staff principles but work for the Division Signal Officer/Battalion Commander.

The Force XXI Division Army Warfighting Experiment (DAWE) in November 1997 affirmed that information superiority had emerged as a key enabler for battlespace dominance in the Army After Next (AAN).<sup>34</sup> Improvements in information superiority gained through national or theater assets and enhanced by organic reconnaissance and surveillance capabilities were designed to allow the digital division to operate over a 120 x 200 km area, compared with a 100 x 100 km area for an AOE division as depicted in figure 3.<sup>35</sup> The 4<sup>th</sup> Infantry Division was reorganized in 1999 into the First Digitized Division and authorized a Lieutenant Colonel as the G6, primary staff officer. The 1<sup>st</sup> Cavalry Division was authorized a G6 when it converted to a digitized division in 2002, the other eight divisions remained unchanged with the division signal battalion commander dual-hatted as the G6.





UA AND UEX MODULAR SIGNAL DESIGNS

Each UA will have an organic embedded signal company organized under the UA's Brigade Troops Battalion (BTB) as shown in figure 5. The UA signal companies will be about 65-75 soldiers in size and commanded by a Captain. The senior signal officer in the UA will be the BCT S6, a Major, who will have functional control of the company. Functional control includes operational and technical control of the BCT network.<sup>37</sup> The S6 in each of the subordinate battalions are authorized a Captain. Direct support signal maintenance on the company's communications equipment will be performed by the sustainment battalion (old forward support battalion).

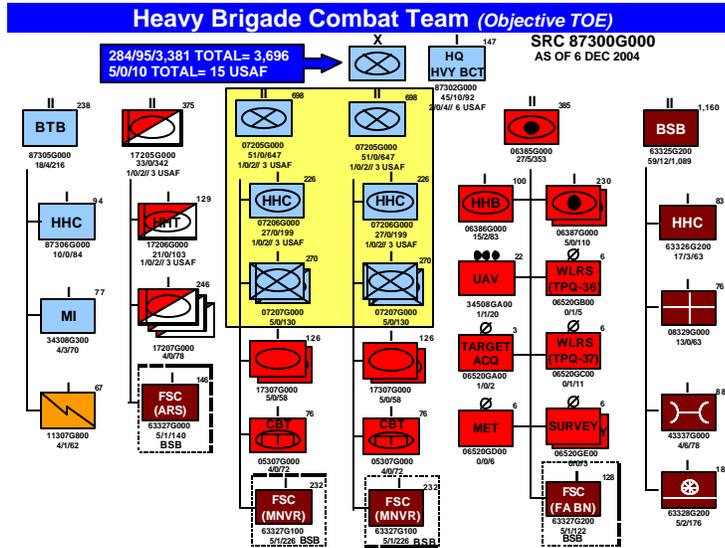


FIGURE 5.

At the UEx level, the embedded signal company will have about 200 Soldiers and will be part of a UEx Division Troops Battalion (DTB). This company will be commanded by a Major and have 2 separate sections, each with a Captain in charge. One section has the responsibility to provide teams to support the three UEx command posts (TAC1, TAC2 and Main) as well as the Mobile Command Group consisting of two Command and Control Vehicles (C2Vs) and two Army Air Command and Control Systems (A2C2S). The other section is responsible for the UEx network hubs and will also have the necessary network operations (NETOPS) capability to manage a UEx network and conduct information assurance (IA) and computer network defense (CND) for up to nine separate UAs (4 Maneuver and five support).

The company will also have a direct support, electronic maintenance team to conduct signal maintenance. The senior signal officer in the UEx will be the G6, Lieutenant Colonel, who will have NETOPS control over all network components of the UEx.<sup>38</sup>

As the signal units convert to a modular design they will be fielded a new Internet Protocol (IP) -based nodal communications system called Joint Network Nodes (JNN). This system is designed to replace the current mobile subscriber (MSE) system. Each JNN provides improved voice, data (Secret Internet Protocol Routing Network (SIPRNET) and Non-secure Internet Protocol Router (NIPR)), and video communications capabilities to the BCT command posts thru a reach back satellite communications system to a standard tactical entry point (STEP) or a UEx satellite hub. The subordinate battalions of the UAs are fielded a Command Post Node (CPN) which provides voice and data (SIPR, NIPR) and video services. The CPN is connected to the JNN by either a line of site (LOS) radio or a beyond line of site KU band satellite terminal. A total of two JNNs and six CPNs will be fielded per maneuver UA.

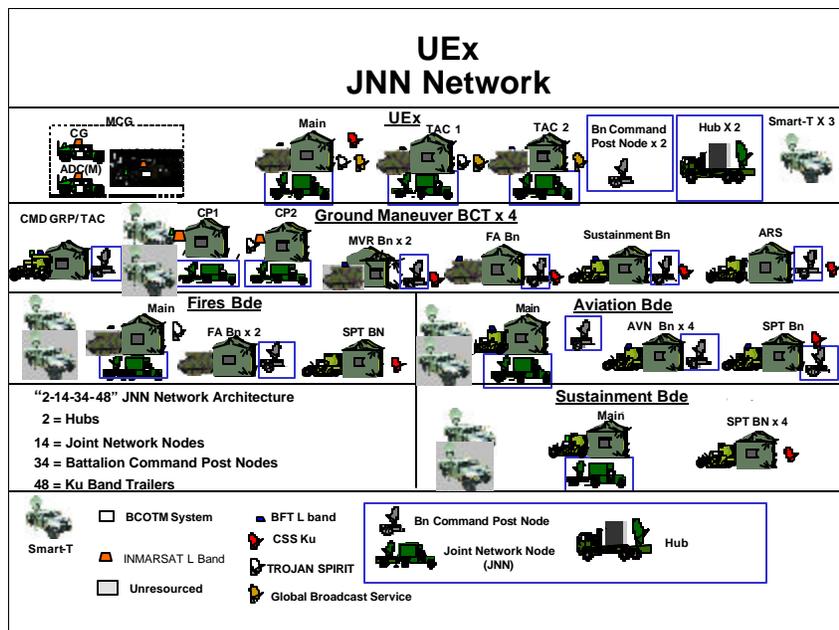


FIGURE 6.

JNNs and CPNS are also found at the UEx level. As shown in figure 6, there are a total of 14 JNNs and 34 CPNs in a 4 UA – UEx. In addition to these assets, the UEx signal company is fielded 2 deployable satellite communication terminals that serve as the hubs for the JNNs

satellite systems and provide connectivity into the Global Information Grid (GIG) and Defense Information Systems Network (DISN).

#### ANALYSIS OF CAPABILITIES

The JNN based communications network established by the Signal Company significantly increases the communications capabilities of the BCT. The internal bandwidth capabilities are increased from 1mbs to over 8 mbs. The largest increase in capability comes at the subordinate battalion command posts which previously only had a small data pipe of 128kbs using the Near Term Data Radio (NTDR) and had a single channel voice capability with the SINCGARS radio system. The CPN provides up to 6 mbs of shared voice, data and video capability to the command post. While the increase in bandwidth may appear to be only numbers, it actually translates into a marked improvement in the ability to command and control forces and obtain situational awareness over far greater distances than have ever been seen in a brigade combat team.

There currently will not be a signal battalion at the UEx level. In a network centric environment, where the network is so vital and critical to establishing information superiority and enabling the commanders to conduct decisive full spectrum combat operations, it appears this is a questionable decision. Nothing works without the network but "push to talk" systems. Lessons learned from OIF clearly demonstrate the critical capabilities a separate signal battalion and G6 can bring to the fight to enable commanders to conduct decisive combat operations. According to LTC Douglas Babb (G6, 4<sup>th</sup> Infantry Division) "the digital division communications that we established in OIF was extremely complex, the new JNN network will be 4 times as difficult to manage."<sup>39</sup> Network engineering, operations, oversight, and network command have traditionally been the mission of the division signal battalion and need to remain so.

The Fight the Network Whitepaper states:

Without global unity of effort, the Network breaks. The Network must be fought by a Network commander at all levels, from the power projection platform to the UEy, UEx, and BCT. Commanders must have direct access to their supporting Network commander to enable unfettered interpretation of the commander's intent for priorities, defense, restoration, sustainment, etc. Just as combat formations are maneuvered to have the maximum impact on the operations, so too must the Network assets be maneuvered to have the greatest impact. Network commanders must have unity of effort to successfully fight and defend the Network and deliver critical global C4 enablers to joint and expeditionary forces. Network commanders must be accountable for the entire network infrastructure and must manage all networks (battle command, intelligence, logistics, personnel, medical, etc.) at the respective echelon to enable warfighter needs.<sup>40</sup>

In the proposed theater signal architecture, the closest network commander will be a brigade commander from the Theater Signal Command located at the UEy level. The signal brigade commander and his/her staff will be located, hundreds, potentially thousands, of miles away from the fight. This simply is not, and will not be, an acceptable solution for UEx and UA commanders when they need access to the network or a communications problem solved immediately.

With no Signal Battalion Commander, the UEx G6 becomes the senior signal officer in the UEx and as such will be responsible to the UEx commander for all things signal. In addition to his primary staff duties of planning and prioritizing C4ISR systems at the UEx level under the direction of the Chief of Staff, the G6 is now responsible for the installation, operation and maintenance of the network, as well as the assignment and training of signal personnel. The Army has recently come on line that this position is so crucial that they centrally selected the G6s during the FY06 command board. Picking the right officers with the requisite knowledge, skills and abilities to perform this daunting job is only half the battle. We must also ensure that the proper authority and responsibilities are clearly defined so that this staff officer can execute his non traditional operational duties normally assigned to a battalion commander. The G6 must closely monitor the assignment and training of signal soldiers including those assigned to the subordinated BCTs to ensure equity and standardization occurs across the entire UEx organization. The procedures to task personnel and equipment to be moved from one UA to another to support priority mission accomplishment must be clearly established in unit SOPs and routinely rehearsed during the planning process.

The direct support signal maintenance capability is insufficient to handle the huge workload that will occur throughout the UA. The ability to troubleshoot, isolate and rapidly repair communications systems is an extremely difficult task. Under the MSE system a maintenance team of seasoned experts from the battalion electronic maintenance shop was deployed with each of the company CPs to focus on equipment repair on an area basis. Authorizing an electronic maintenance team for each of the UA signal companies will greatly improve signal equipment maintenance.

Who commands the network at the UEx level? Who makes decisions on priority bandwidth and frequency allocation when it is limited and every BCT commanders wants everything right now? Who reallocates signal assets when a priority user goes down? Who solves the problems of inter and intra brigade situational awareness (SA). These are the most crucial questions that must be answered now. When a UEx or UA deploy into a theater they expect immediate connectivity to the network in order to conduct any type of operation. They

must have access to internal, national, and theater assets for command and control, intelligence, and combat service support (CSS) systems to function properly.

The requirements remain for a separate G6 and a signal battalion commander at the UEx level today – one to coordinate, plan and prioritize C4ISR systems, the other to install, operate, maintain, and command the network. Lessons learned from the digitized divisions during OIF have shown us that anything that connects to or plugs into the network can have an adverse impact on the entire network. While the UAs will certainly fight the network capabilities internal to their BCT, they will be less concerned with issues and interconnectivity with adjacent BCTs or even the UEx. This environment requires a coordinated, controlled and synchronized effort to ensure access to the network and the fight for everyone. The integration of network capabilities across internal and external organizations requires a network commander at the UEx to do so – a UEx Signal Battalion Commander.

## **CONCLUSIONS AND RECOMMENDATIONS**

The Army is at war and will be for a protracted period of time. With no end in sight to the deployment into combat theaters, and ongoing commitments around the world, the Army has broken the cycle of mobilizing, fighting, and retraining after each war. Today, there is no longer an “after war.”<sup>41</sup> To meet today’s challenges the Army has implemented a strategic Transformation Plan that is fully nested with the guidance and policy of the National Security Strategy, the National Military Strategy, as well as the Transformation Planning Guidance. The Army Transformation Roadmap’s key components focus on changing the culture, the processes, and the capabilities of the force. The ATR provides the ways and means to provide a relevant and ready force which can obtain the strategic ends established by national strategy and simultaneously deal with the current threats posed by the contemporary operating environment of the Global War on Terrorism.

The Army must continue its rapid fielding initiatives to ensure that soldiers in the current force who are conducting operations in a combat environment continue to get the latest and best equipment.

It could do several things to make the overall transformation effort more successful. Starting by improving the strategic communications plan to ensure that the Army vision on transformation is conveyed and understood by the force. In addition, the Army also needs to capture lessons learned from battalion and brigade commanders, with recent combat and modularity experience, to re- evaluate the battalion, brigade, and division level designs at the UA level in order to ensure that we get it right now. Failure to capture the knowledge now will

only result in another “duffel bag drag” reorganization once the battalion commanders of today become the generals in the Army tomorrow.

Every organization at the UA and UEx level will face challenges as their units transform to a modular design while the Army is heavily engaged in operations around the globe. The organizational design of the signal companies is a significant change from the current division signal battalion. These changes will no doubt have a great impact on the ability to provide command and control communications systems that provide situational awareness and enable commanders to conduct operations.

I propose that a signal battalion be assigned at the UEx level, to provide the UEx commander with a network commander to fight his integrated UEx network. The battalion can be created out of assets already assigned to the DTB, the UA level signal companies will be assigned to the signal battalion and attached to the UAs.

While every soldier will certainly do their utmost to ensure the success of the modular organizations, the Army must have systems in place to capture the lessons learned as the 3<sup>rd</sup> Infantry Division deploys to Iraq and validates the design. If something does not work as designed, then we need to be willing to reassess, and make changes, if necessary – even if it means re-activating a unit like the Division Signal Battalion.

WORD COUNT= 6180

## ENDNOTES

<sup>1</sup> George W. Bush, "Speech at the Citadel on the Future Security of Our Country," Charleston, SC, 11 December, 2001; available from <<http://www.whitehouse.gov/news/releases/2001/12/20011211-6.html>>; Internet; accessed 10 January 2005.

<sup>2</sup> Robert B. Killebrew, "It's a Daunting Time to Be a Soldier," *Proceedings: U.S. Naval Institute* 130 (June 2004): 75.

<sup>3</sup> Vince Crawley and Gopal Ratman, "U.S. Transformation Chief Says Iraq Combat Accelerates Efforts," *Defense News* 19 (19 January 2004): 18.

<sup>4</sup> Tom E. Ricks and Josh White, "Scope of Change in Military Is Ambiguous: Transformation to Some Appears Minor to Others," *Washington Post*, 1 August 2004, sec. A, p.6.

<sup>5</sup> Richard A. Lacquement, Jr., *Shaping American Military Capabilities after the Cold War* (Westport: Praeger, 2003), 23.

<sup>6</sup> A.K. Cebrowski, *Military Transformation: A Strategic Approach* (Washington, D.C.: Office of the Secretary of Defense, Force Transformation, 2003), 8.

<sup>7</sup> George W. Bush, *The National Security Strategy of the United States of America* (Washington, D.C.: Executive Office of the President, September, 2002), 29.

<sup>8</sup> *Ibid.*, 29.

<sup>9</sup> Richard B. Myers, *The National Military Strategy of the United States of America 2004* (Washington, D.C.: The Joint Chiefs of Staff, 2004), 1.

<sup>10</sup> *Ibid.*, iii.

<sup>11</sup> Donald H. Rumsfeld, *Transformation Planning Guidance* (Washington D.C.: U.S. Department of Defense, April 2003), 1.

<sup>12</sup> *Ibid.*, 13.

<sup>13</sup> Peter J. Schoomaker, *The United States Army Transformation Roadmap 2004*, (Washington, D.C.: U.S. Department of the Army, 1 November, 2004), ix.

<sup>14</sup> Byron E. Greenwald, "The Anatomy of Change: Why Armies Succeed or Fail at Transformation (Arlington, VA: Association of the United States Army, Institute of Land Warfare, September 2000), 10.

<sup>15</sup> John P. Kotter, *Leading Change* (Boston: Harvard Business School Press, 1996), 9.

<sup>16</sup> David M. Walker, "Defense Transformation: A Battle the U.S. Cannot Afford to Lose," *National Defense* 89 (September 2004) 46.

<sup>17</sup> Schoomaker, 1-7.

<sup>18</sup> Douglas A. Macgregor, *Transformation Under Fire* (Westport: Praeger, 2003), 1.

<sup>19</sup> Michael D. Doubler, *Closing with the Enemy: How GIs Fought the War in Europe 1944 - 1945* (Lawrence: University Press of Kansas, 1994), 293.

<sup>20</sup> Anne Plummer, "New Modernization Plan Says Army Will Not Risk Unready Troops," *Inside the Army*, 19 July 2004, 1.

<sup>21</sup> Killebrew, 76.

<sup>22</sup> Schoomaker, 1-8.

<sup>23</sup> Plummer, 1.

<sup>24</sup> Steven W. Boutelle, *Fight the Network Whitepaper* (Washington D.C.: U.S. Army Chief Information Officer/G6, August 2004), 6.

<sup>25</sup> Maryann Lawlor, "Army Accelerates End to End Network Centricity," *Signal 58* (July 2004): 18.

<sup>26</sup> Killebrew, 77.

<sup>27</sup> Greenwald, 8.

<sup>28</sup> Douglas A. MacGregor, "Army Transformation," *Washington Times*, 11 February 2005, sec. A, p. 20.

<sup>29</sup> Peter J. Schoomaker, *Serving a Nation at War: A Campaign Quality Army with Joint and Expeditionary Capabilities* (Washington, D.C.: U.S. Army Public Affairs, Army Strategic Communications, 29 June 2004), 19.

<sup>30</sup> Keith H. Snook, *The Evolution of the Signal Corps Organization*, Strategy Research Project, (Carlisle Barracks: U.S. Army War College, 11 March 1998), 3.

<sup>31</sup> George Raynor Thompson and Dixie R. Harris, *The Signal Corps: The Outcome* (Washington, D.C.: Office of the Chief of Military History, 1966), 619-620.

<sup>32</sup> Ibid.

<sup>33</sup> Rebecca R. Raines, *Getting the Message Through: A Branch History of the Signal Corps* (Washington, D.C.: U.S. Army Center of Military History, 1996), 342.

<sup>34</sup> Dennis L. Via, *The Division G6: Strategic Signal Leadership for Information Superiority in the Army After Next*, Strategy Research Project, (Carlisle Barracks: U.S. Army War College, 5 April 1999), 2.

<sup>35</sup> Billy J. Jordan and Mark J. Reardon, "Restructuring the Division: An Operational and Organizational Approach," *Military Review* 78 (May-June 1998), 21.

<sup>36</sup> Via, 30.

<sup>37</sup> Department of the Army, *Army Comprehensive Guide to Modularity*, (Fort Monroe: U.S. Army Training and Doctrine Command, 8 October 2004), 7-4.

<sup>38</sup> Paul Howard, "UEX G6 and Network Support," briefing slides, Fort Gordon, Office Chief of Signal, 21 October 2004.

<sup>39</sup> Douglas Babb, telephone interview by author with Assistant Chief of Staff, G6, 4<sup>th</sup> Infantry Division, 9 Feb 2004.

<sup>40</sup> Boutelle, 12.

<sup>41</sup> Killebrew, 77.



## BIBLIOGRAPHY

- Babb, Douglas. Telephone interview by author with Assistant Chief of Staff, G6, 4<sup>th</sup> Infantry Division, 9 February 2004.
- Boutelle, Steven W. "Fight the Network White Paper," White Paper. Washington D.C., August 2004.
- Bush, George W. "Speech at the Citadel on the Future Security of Our Country," Charleston, SC, 11 December, 2001. Available from <<http://www.whitehouse.gov/news/releases/2001/12/20011211-6.html>>. Internet. Accessed 10 January 2005.
- Bush, George W. *The National Security Strategy of the United States of America*. Washington, D.C.: The Executive Office of the President, September, 2002.
- Cebrowski, Arthur K. *Military Transformation: A Strategic Approach*. Washington, D.C.: Office of the Secretary of Defense, Force Transformation, Fall 2003.
- Crawley, Vince, and Gopal Ratman. "U.S. Transformation Chief Says Iraq Combat Accelerates Efforts." *Defense News* 19 (January 2004).
- Doubler, Michael D. *Closing with the Enemy: How GIs Fought the War in Europe 1944-1945*. Lawrence: University Press of Kansas, 1994.
- Greenwald, Byron E. *The Anatomy of Change: Why Armies Succeed or Fail at Transformation*. Arlington, VA: Association of the United States Army, Institute of Land Warfare, September 2000.
- Griffin, Benjamin S. *2004 Army Modernization Plan*. Washington D.C.: The Army G8, June 2004.
- Howard, Paul. "UEx G6 and Network Support." Briefing slides. Fort Gordon: Office Chief of Signal, 21 October 2004.
- Jordan, Billy J., and Mark J. Reardon. "Restructuring the Division: An Operational and Organizational Approach." *Military Review* 78 (May-June 1998): 17-25.
- Killebrew, Robert B. "It Is a Daunting Time to be a Soldier." *Proceedings: United States Naval Institute* 130 (June 2004): 75-78.
- Kotter, John P. *Leading Change*. Boston: Harvard Business School Press, 1996.
- Lacquement, Richard A., Jr. *Shaping American Military Capabilities after the Cold War*. Westport: Praeger, 2003.
- Lawlor, Maryann. "Army Accelerates End to End Network Centricity." *Signal* 58 (July 2004).
- MacGregor, Douglas A. "Army Transformation." *Washington Times*, 11 February 2005, sec. A, p. 20.
- MacGregor, Douglas A. *Transformation Under Fire*. Westport: Praeger, 2003.

- Myers, Richard B. *The National Military Strategy of the United States of America 2004*. Washington D.C.: The Joint Chiefs of Staff, 2004.
- Plummer, Anne. "New Modernization Plan Says Army Will Not Risk Unready Troops." *Inside the Army*. Washington, D.C.: 19 July 2004.
- Raines, Rebecca R. *Getting the Message Through: A Branch History of the Signal Corps*. Washington, D.C.: U.S. Army Center of Military History, 1996.
- Ricks, Thomas E., and Josh White. "Scope Of Change In Military Is Ambiguous: Transformation to Some Appears Minor to Others." *Washington Post*, 1 August 2004, sec. A, p. 6.
- Rumsfeld, Donald H. *Transformation Planning Guidance*. Washington D. C.: U.S. Department of Defense, April 2003.
- Schoomaker, Peter J. *Serving a Nation at War: A Campaign Quality Army with Joint and Expeditionary Capabilities*. Washington, D.C.: U.S. Department of the Army, June 2004.
- \_\_\_\_\_. *The United States Army Transformation Roadmap 2004*. Washington, D.C.: U.S. Department of the Army, 1 November, 2004.
- Snook, Keith H. *The Evolution of the Signal Corps Organization*. Strategy Research Project. Carlisle Barracks: U.S. Army War College, 11 March 1998.
- Thompson, George R., and Dixie R. Harris. *The Signal Corps: The Outcome*. Washington D.C.: Office of the Chief of Military History, 1966.
- U.S. Department of the Army. *Army Comprehensive Guide to Modularity*. Fort Monroe: U.S. Army Training and Doctrine Command, 8 October 2004.
- Via, Dennis L. *The Division G6: Strategic Signal Leadership for Information Superiority in the Army After Next*. Strategy Research Project. Carlisle Barracks: U.S. Army War College, 5 April 1999.
- Walker, David, M. "Defense Transformation: A Battle the U.S. Cannot Afford To Lose," *National Defense* 89 (September 2004): 46-47.