

*United States Marine Corps
Command and Staff College
Marine Corps University
2076 South Street
Marine Corps Combat Development Command
Quantico, Virginia 22134-5068*

MASTER OF MILITARY STUDIES

Forging the Army's Transformation: The Initial Brigade Combat Team and "The Road to Initial Operational Capability"

**SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES**

MAJ Andrew T. Clements, USA

AY 2000-2001

Mentor: COL James M. McCarl, Jr., U.S. Army

Approved:_____

Date:_____

Mentor: Professor Eugene H. Grayson

Approved:_____

Date:_____

Mentor: Dr. John B. Matthews

Approved:_____

Date:_____

Report Documentation Page		
Report Date 2002	Report Type N/A	Dates Covered (from... to) -
Title and Subtitle Forging the Armys Transformation: The Initial Brigade Combat Team and The Road to Initial Operational Capability	Contract Number	
	Grant Number	
	Program Element Number	
Author(s)	Project Number	
	Task Number	
	Work Unit Number	
Performing Organization Name(s) and Address(es) Joint Military Operations Department Naval War College 686 Cushing Road Newport, RI 02841-1207	Performing Organization Report Number	
Sponsoring/Monitoring Agency Name(s) and Address(es)	Sponsor/Monitor's Acronym(s)	
	Sponsor/Monitor's Report Number(s)	
Distribution/Availability Statement Approved for public release, distribution unlimited		
Supplementary Notes The original document contains color images.		
Abstract The conclusion of the Cold War created significant global instability and an increasingly unpredictable operational environment for the 21 st Century. Recognizing the potential irrelevance of its Cold War design, the Army embarked upon an aggressive transformation initiative. The Initial Brigade Combat Teams are the most recent step toward achieving such modernization. The first IBCT is the actualization of a decades work in force structure and capabilities modeling. Ten years of research and organizational experimentation are combined with proven, off-the-shelf equipment to provide a full spectrum, combat force. Within the context of the greater Army transformation, the IBCTs are the conduit between the Legacy Force and the Objective Force. Fittingly, they are the centerpiece of the Interim Force as they are a blending of the desirable qualities of contemporary Heavy and Light Forces fitted with select automation and digitization products from the Force XXI initiative.		
Subject Terms		
Report Classification unclassified	Classification of this page unclassified	

Classification of Abstract unclassified	Limitation of Abstract UU
Number of Pages 71	

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

Executive Summary

Title: Forging the Army's Transformation: The Initial Brigade Combat Team and "The Road to Initial Operational Capability"

Author: MAJ Andrew T. Clements

Thesis: The process for simultaneously integrating technological, organizational, and doctrinal innovation in the development of the Initial Brigade Combat Teams provides a comprehensive solution for the Army's near-term capabilities gap while simultaneously providing the vehicle for long-term *transformation* initiatives.

Discussion: The conclusion of the Cold War created significant global instability and an increasingly unpredictable operational environment for the 21st Century. Recognizing the potential irrelevance of its Cold War design, the Army embarked upon an aggressive *transformation* initiative. The Initial Brigade Combat Teams are the most recent step toward achieving such modernization.

The first IBCT is the actualization of a decade's work in force structure and capabilities modeling. Ten years of research and organizational experimentation are combined with proven, "off-the-shelf" equipment to provide a full spectrum, combat force. Within the context of the greater Army *transformation*, the IBCTs are the conduit between the *Legacy Force* and the *Objective Force*. Fittingly, they are the centerpiece of the *Interim Force* as they are a blending of the desirable qualities of contemporary *Heavy and Light Forces* fitted with select automation and digitization products from the Force XXI initiative.

Elements of the Army's Training and Doctrine Command (TRADOC) developed a strategy for rapidly turning the IBCT Organizational and Operational concept into reality. The Army's Forces Command and I Corps were the force providers in the form of 3rd Brigade of the 2nd Infantry Division. This collaboration of Army Major Commands resulted in the "Road to IOC", a fully integrated scheme for achieving Initial Operational Capability (IOC) by December 2001.

The "Road to IOC" optimizes rapid change by facilitating the evolution of technology, doctrine, and organization in a parallel and simultaneous process of change. Additionally, this scheme maximizes efficiency through multi-echelon training and maximizes effectiveness through iterative training mechanisms and rigorous analytics. Critical aspects of the training plan include a Developmental Phase using loaner and surrogate equipment, a New Equipment Training and New Organizational Team Training Phase, and an Operational Phase focused on collective training. Ultimately, a capstone exercise at one of the Army's Combat Training Centers provides the measure of validation for determining IOC.

Conclusion: The "Road to IOC" for the IBCTs combines the best available technology with a training protocol that cultivates toughness, competency, and initiative at every echelon of the organization. By balancing overall force structure between the *Legacy Force* and the *Interim Force*, the Army most effectively meets the demand of today's National Security Strategy. Additionally, modernization of organizational and doctrinal concepts will provide the foundation of operational and institutional experience required to maximize *Science and Technology* solutions while moving toward the *Objective Force*.

Table of Contents

	<i>Page</i>
MMS Cover Sheet.....	i
DISCLAIMER.....	ii
EXECUTIVE SUMMARY.....	iii
LIST OF ILLUSTRATIONS.....	vi
PREFACE.....	vii
INTRODUCTION.....	1
THE ARMY CHIEF OF STAFF’S VISION.....	1
21 ST CENTURY SECURITY REQUIREMENTS AND THE SPECTRUM OF OPERATIONS.....	3
THE ARMY’S TRANSFORMATION STRATEGY.....	4
The Legacy Force.....	6
The Objective Force.....	8
The Interim Force.....	9
ANALYSIS OF THE ARMY’S TRANSFORMATION STRATEGY.....	10
HOW THE ARMY GOT TO THIS POINT: CONTINUOUS LEARNING.....	12
THE ARMY TRANSFORMATION CAMPAIGN PLAN.....	16
Phase I – Building the Initial Brigade Combat Teams.....	17
A Philosophy for Change.....	18
The “Road to IOC”.....	21
THE 21 ST CENTURY OPERATIONAL ENVIRONMENT.....	23
THE IBCT CAPABILITY REQUIREMENT.....	24
IBCT/OBJECTIVE FORCE QUALITIES.....	26
Technology.....	27
Organization.....	30
Doctrine.....	31
Analytics.....	33
ANALYSIS OF OBJECTIVE FORCE QUALITIES.....	35

PHASE IA – DEVELOPMENTAL TRAINING.....	38
Phase Ia – Developmental Training: Technology Integration.....	41
Phase Ia – Developmental Training: Organizational Integration.....	43
Phase Ia – Developmental Training: Doctrinal Integration.....	47
PHASE IB – NEW EQUIPMENT FIELDING.....	47
PHASE IC – OPERATIONAL TRAINING.....	48
PHASE ID – THE DEVELOPMENT AND FIELDING OF SUBSEQUENT FORCES.....	51
ANALYSIS OF PHASE I – BUILDING THE IBCT.....	51
CONCLUSION.....	54
BIBLIOGRAPHY.....	57

Illustrations

	<i>Page</i>
Figure 1. The Spectrum of Operations.....	3
Figure 2. The Army Transformation Strategy.....	5
Figure 3. The Army’s “Continuous Learning” Initiatives.....	14
Figure 4. Parallel and Simultaneous Evolution vs. Linear and Sequential Evolution.....	20
Figure 5. War as a Forcing Function to Change.....	20
Figure 6. Phase I (IBCT) of the Army Transformation Campaign Plan.....	22
Figure 7. Global Perspective on Threat Potential.....	24
Figure 8. Blending the Qualities of the <i>Legacy Force</i>	25
Figure 9. The IBCT Organization.....	31
Figure 10. Phase Ia (Developmental Training) Analytics Plan.....	34
Figure 11. Phase Ib (New Equipment) and Phase Ic (Operational Training) Analytics Plan.....	35
Figure 12. Phase Ia (Developmental Training) March-August 2000.....	39
Figure 13. Phase Ia (Developmental Training) September 2000-February 2001.....	40
Figure 14. The Surrogate Pool.....	44
Figure 15. New Equipment Fielding Embedded in the Operational Training Phase.....	48

Preface

I wrote this paper in an effort to create a single-source document that consolidates information on the various *transformation* initiatives that contributed to the creation of the Initial Brigade Combat Teams (IBCTs) at Fort Lewis, WA. My perception was that a tremendous number of periodicals addressed the various aspects and niches of how and why the Army is changing, but failed to show how the various studies and initiatives related to each other. The recent momentum and emphasis on the IBCTs also creates the misperception that current *transformation* initiatives are a rush to judgment and a misplaced reaction to the conflict in Kosovo. Therefore, the objective of this paper is four-fold: 1) demonstrate that the IBCTs are the product of a deliberate and coherent process that began at the conclusion of the Cold War; 2) clarify the IBCT's role in answering today's security requirements while simultaneously serving as the interim step in an on-going process of change; 3) highlight the Army's effort to change internally through an aggressive process of parallel and simultaneous evolution in technology, organization, and doctrine; and 4) show how the institutional and organizational Army translated the concept of parallel change into a coherent training plan called the "Road to IOC".

The United States Army has embarked upon a historic effort to revise the manner in which it fights. It is a holistic transformation involving the integration of the latest generation technology, innovative organizational design, and visionary doctrinal revision. Such changes will fill an increasingly dangerous capabilities void as well as provide the impetus for change into the next decade. The Army's transformation initiative is remarkable in its desired end state and in the highly organized and efficient manner in which it will achieve that end state. Ten years of conceptual research, systems and organizational experimentation, and product/solution validation are now focused on providing the Army an entirely new capability. A single brigade, the first Initial Brigade Combat Team, is the focal point of this effort - the actualization of a decade's work in force structure and capabilities modeling. This brigade, the 3rd Brigade of the 2nd Infantry Division, is the first unit in the Army to transform from a Cold War formation into a 21st Century, full spectrum, combat force. This study will review the historic impetus for the Army's transformation initiative and the role the Initial Brigade Combat Team (IBCT) plays in fulfilling near and long-term transformation requirements. It will also discuss the IBCT's capabilities requirements, the methodology for rapidly incorporating comprehensive technological, organizational, and doctrinal change within the IBCT, and details of the implementation plan that will bring the IBCT to Initial Operational Capability (IOC).

The Army Chief of Staff's Vision

On October 16, 1999, during the annual Association of the United States Army (AUSA) meeting in Fort Leavenworth, Kansas, the U.S Army's 34th Chief of Staff, GEN Eric K. Shinseki, announced an aggressive program to break the dogmatic constructs of the Cold War Army. His proposed transformation of the Army's operational force was controversial in its

implication that the highly successful war machine of Desert Storm was somehow inadequate or irrelevant in the context of the 21st Century. Moreover, his proposed timeline for transforming the operational force appeared ambitious, if not impossible. One year later (October 2000), GEN Shinseki reported that the initial steps of his vision had become a reality at Fort Lewis, Washington. Additionally, in an AUSA, *Army Green Book* article entitled “The Army Transformation: A Historic Opportunity”, he reiterated the historic context and operational environment that have provided the catalyst for change and the basis for urgency in his timeline:

“During Army Posture hearings this year, Members of Congress were provided copies of Charles E. Heller’s and William A. Stoff’s *America’s First Battles: 1776-1965*. This volume of essays about our nation’s first combat encounters in each of our wars recounts America’s spotty record of preparedness for war. The reasons for these poor showings vary, but chief among them was complacency in times of peace, in the years between the wars. That kind of national complacency has led to early disaster in past years. We, as a nation, must ensure that the next chapter of *America’s First Battles* will recount how we learned the lessons of our past and applied them with wisdom and foresight to the future.”¹

GEN Shinseki’s words highlight a tragic, cyclic trend in American history - the U.S. military typically rouses from periods of relatively peaceful “hibernation” when called to embark upon its wars. There are many political and military causes for this complacency. Peacetime, diminished defense spending consistently ranks highly among the reasons. Yet, this is not the only cause for peacetime complacency. There is a well-founded belief that military organizations are incapable of significant and rapid change from within due to the inherently slow and mechanical nature of military bureaucracy. Tradition and esprit characterize a deep-rooted conservative mentality that reflexively resists change. Regardless of the cause, failure to effectively cultivate and manage change during peace results in unnecessary and significant loss of life during war.

¹ Eric K. Shinseki, “The Army Transformation: A Historic Opportunity,” *Magazine of the*

21st Century Security Requirements and the Spectrum of Operations

Yet, change for the sake of change is irresponsible and wasteful. It must be framed in the context of existing and potential requirements. Our National Security Strategy defines three objectives: enhancing America's security, bolstering America's economic prosperity, and promoting democracy and human rights abroad.² Achieving these strategic objectives requires the ability to accomplish disparate missions along the entire spectrum of military operations (figure 1). The Army's contract with the American people is to fight and win the nation's wars, the operations at the high-end of the spectrum. Yet, events of the last decade illustrate that high-end conflicts are less likely to occur while less intense operations along the low-end of the spectrum are significantly more probable.³

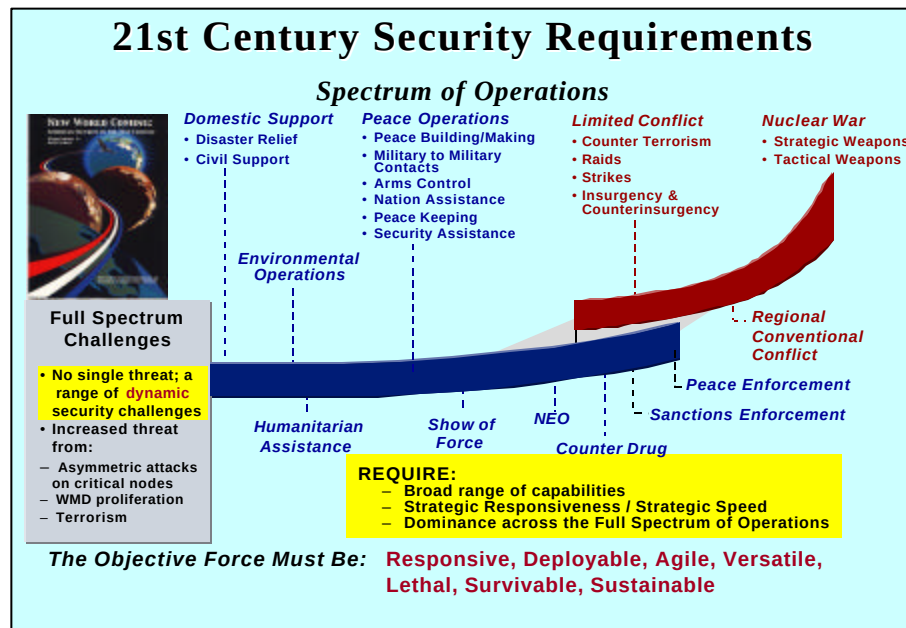


figure 1 – The Spectrum of Operations⁴

Association of the United States Army: 2000-01 Green Book, October 2000, 21-22.

² Shinseki, 22.

³ Shinseki, 22-23.

⁴ United States Army Training and Doctrine Command, "Army Transformation Overview, Operational Concept and Brigade Design," URL: <[http://www.tradoc.army.mil/transformation/Document Native Format/Trans overview 081300 mar 00.ppt](http://www.tradoc.army.mil/transformation/Document%20Native%20Format/Trans%20overview%20081300%20mar%2000.ppt)>, accessed 13 November 2000.

The condition of diminished probability for high-end conflict is relatively new. Until the end of the Cold War, the standoff with the Warsaw Pact provided a galvanizing and credible threat at the high-end. Two significant characteristics emerged from the Cold War environment's strategic focus on the plains of Central Europe: rare deployments elsewhere and a force structure designed to fight a highly sophisticated, combined arms adversary on a narrowly defined battlefield. The legacy of this environment is an unparalleled warfighting capability on the high-end assembled around two characteristics - heavy and light: exceptionally lethal and survivable *heavy forces* that are difficult to deploy strategically and *light forces* that are strategically more responsive. The *light forces* are well suited for stability and support operations but lack tactical mobility and lethality and survivability against mechanized forces. This disparity reveals a grave capabilities gap.

The end of Cold War bi-polarity also led to significant instability in an increasingly multi-polar world. Such instability induced a 300 percent increase in OPTEMPO at a time when force structure experienced a one-third reduction in total numbers.⁵ These trends clearly exasperate the capabilities disparity. Therefore, the Army's force structure, when templated against a significantly increased probability for multi-spectrum requirements, highlights a limited versatility that could be a critical vulnerability. Mitigating that vulnerability is an objective of the Army's *transformation*.

The Army's Transformation Strategy

The *Army's Transformation Strategy* attempts to simultaneously enhance current forces while building new forces with "an improved capability for the rapid deployment of highly

⁵ Shinseki, 23.

integrated, combined arms forces possessing overmatching⁶ capabilities, exploiting the power of information and human potential, and combining the advantages of both *light and (heavy) forces.*”⁷ This transformation strategy will proceed along three parallel axes at the macro level to mitigate the readiness risks associated with evolving technology, doctrine, and organization (figure 2). A critical aspect of the strategy is that it is event driven, with less tangible objectives and milestones as the three axes merge into the single arrow representing the *Objective Force*.

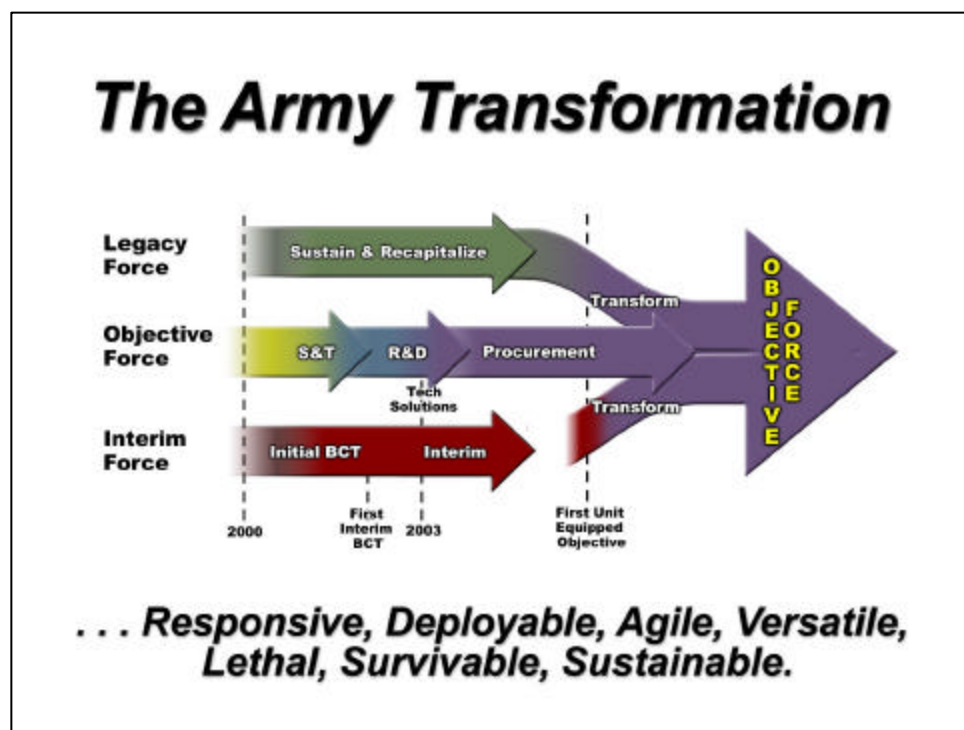


figure 2 – The Army's Transformation Strategy⁸

⁶ In slide 5 of TRADOC's "The Army Transformation Overview," "Overmatch" is defined as "generating and applying power similar to that of the enemy's at a level and in a manner he cannot match." Overmatch suggests an overwhelming imbalance of combat effects.

⁷ United States Army Training and Doctrine Command, "Mission Need Statement for Rapidly Deployable Armored Combat Forces Potential ACAT 1," URL: <[http://www.tradoc.army.mil/transformation.../IAV Mission Needs Statement.htm](http://www.tradoc.army.mil/transformation.../IAV%20Mission%20Needs%20Statement.htm)>, accessed 13 November 2000, 1.

The Legacy Force

The top arrow in the *Army's Transformation Strategy* depicts the sustainment and modification of the *Legacy Force*, the heavy and light organizations that won the Cold War and Desert Storm. Even as the Army moves toward the *Objective Force*, it must continuously validate and reinforce its non-negotiable contract with the American people to fight and win wars, today. This guarantee requires a prudent recapitalization⁹ of this core force and continued fielding of programmed modernization initiatives.¹⁰ While recapitalization and new equipment fielding do not increase the strategic mobility of the *Legacy Force*, they do potentially provide significant improvements in lethality and survivability. III Corps and Fort Hood, Texas are the epicenter of this innovation with the latest generation of digitally enhanced, heavily armored combat systems. Efforts to integrate information age technologies with long range sensors and combat-proven weapons systems enable the Army to make two conceptual shifts: from platform-centric to network-centric engagements and from plan-centric to operation-centric warfare.¹¹

The M1A2 Main Battle Tank epitomizes platform-centric warfare. This 70-ton creation is the most lethal and survivable fighting machine on the face of the Earth when taken in the context of a fighting entity. Its design reflects warfighting as a contest of armies whose success

⁸ Shinseki, 30.

⁹ In BG Ross Thompson's portion of one of several briefings delivered during the Institute of Land Warfare's Army Transformation Panel briefings, he defined recapitalization as "the rebuild and selective upgrade of currently fielded systems to ensure operational readiness. Rebuild restores systems to a like-new condition in appearance, performance, and life expectancy; inserts new technology to improve reliability and maintainability. Selected upgrade rebuilds systems and adds warfighting capability improvements to address capability shortcomings." Office of the Chief of Staff of the Army, "Army Transformation Panel Institute for Land Warfare," URL: [http://www.army.mil/usa/AUSA Web/PDF Files/Master Desk.pdf](http://www.army.mil/usa/AUSA%20Web/PDF%20Files/Master%20Desk.pdf), accessed 13 November 2000, slide 9.

¹⁰ Office of the Chief of Staff of the Army (DACs-ZA), "Transformation Planning Directive #2," URL: [http://www.tradoc.army.mil/transformation/Data Pages/Planning Directive #2.htm](http://www.tradoc.army.mil/transformation/Data%20Pages/Planning%20Directive%20#2.htm), accessed 13 November 2000, 4.

¹¹ See the August 2000 issue of *Army: Magazine of the Association of the United States Army* for three exceptionally informative articles on the progress of digitization in III Corps, the vision for network-centric warfare, and the integration of information age technologies with remote sensing capabilities. "Operation-Centric Warfare: The Bold Shift" by LTG Leon J. Laporte (III Corps Commander) and COL Winn Noyes, 17-20; "Operation-Centric Warfare: Setting the Conditions for Success at Brigade and Battalion" by MG Benjamin S. Griffin and LTC Archie

or failure ultimately lay in the hands of individuals, crews, and machines competing as individual entities against equivalent enemy entities. Network-centric warfare not only envisions the digitally enhanced M1A2 MBT as a highly lethal combat platform, but also considers it a well-protected and critical element within a sensor network. Therefore, any other tenant combat or combat support system in the given M1A2's associated network is instantly able to influence a fight that was previously the exclusive responsibility of the single tank crew. The combined combat potential of the networked system exponentially increases the lethality and survivability of any single combat entity.¹²

Historically, the Army's best frame of reference for a collective common picture of an operation was the plan articulated on a paper map during an operations order. All information and communications received or sent during mission execution required confirmation against the initial common picture. This continuous validation against the original point of reference, the initial plan, illustrates plan-centric warfare. Current technology allows the installation of paneled liquid crystal displays in every combat platform and Tactical Operations Center. As a result, every echelon of command can now share a common picture that is continuously updated as operations progress, thus facilitating instantaneous information dissemination and common mission understanding to the lowest level. While initial planning remains essential, in-stride changes are articulated and executed with a significantly increased level of clarity, speed, and accuracy. Therefore, the continuously updated collective common picture facilitates operations-centric warfare.¹³

Davis, 21, 22, 24; "III Corps Expands the Knowledge Base for Employing Sensors" by COL Charles J. Green and MAJ James D. Edwards, 25, 26, 28.

¹² "Operation-Centric Warfare: The Bold Shift," 19.

¹³ "Operation-Centric Warfare: The Bold Shift," 20.

The Objective Force

The center arrow on the *Army's Transformation Strategy* represents the most radical and concept-driven aspect of the transformation strategy. At a fundamental level, its purpose is to provide an answer to the deployability versus survivability and lethality quandary. GEN Shinseki challenged the *Science and Technology* community to provide a technical solution by 2003 that would enable an intensive Research and Development plan and subsequent procurement initiative.¹⁴ This solution is called *Future Combat Systems* and its actualization is the decision point to merge the parallel axes of the *Army's Transformation Strategy* into the *Objective Force*. The *Future Combat Systems* initiative must not be considered in the context of infantry, armor, artillery, etc., but in the context of a multi-functional, integrated system of systems that provide direct-fire, indirect-fire, non-lethal, reconnaissance, command and control, troop support, and air defense capabilities.¹⁵ Lieutenant Colonel Marion H. Van Fosson, program manager for *Future Combat Systems* in the Defense Advanced Research Projects Agency (DARPA) explains the focus for the initial effort:

“DARPA is focusing its technology activities on six fundamental areas: robotics, the autonomy and vision piece of the puzzle; unmanned ground vehicles with design activities open to revolutionary new theories for vehicle appearance; maneuver command and control capable of everything from robotic system control to networked fires; an organic all-weather targeting vehicle that can exploit three dimensions; an all-weather surveillance and targeting sensor; and a maneuver beyond-line-of-sight networked fires weapon.”¹⁶

Army Material Command (AMC) is conducting parallel research in the application of kinetic energy munitions, new conventional cannons, electromagnetic guns, directed energy weapons,

¹⁴ Shinseki, 28.

¹⁵ Scott R. Gourley, “Future Combat Systems,” *Army: Magazine of the Association of the United States Army* 50, no. 7 (July 2000): 23.

pulsed power, robotics, multifunctioning staring sensors, advanced armor, robotic “missile in a box” concepts, active protection, signature management, and wireless communications and sensors.¹⁷ DARPA and the Army developed a progressive approach to harnessing America’s private sector by incorporating Boeing, Raytheon, TRW, Lockheed Martin, Vought Systems, CSC/Nichols Research, Carnegie Mellon Research Institute, Battelle Material Institute, Memorial Institute, and IITRI/AB Tech Group to help in the definition and selection process. This mix of vision and resourcing appears to provide the greatest probability of achieving the Army Chief of Staff’s ambitious timeline of fielding the *Objective Force* in 2010-2012 by allowing governmental and non-governmental interests to influence concept development at the earliest stages.¹⁸

The Interim Force

Clearly, the Army has a substantive plan for underwriting its contract with America to defeat any enemy in open warfare through its modernization and recapitalization of the *Legacy Force*. Additionally, the vision for integrating premier, 21st Century technology into a new Army of the future is well disseminated. Yet, the most optimistic estimate for reaching this *Objective Force* vision leaves 10 years of the aforementioned capabilities gap. Moreover, the mere introduction of “Buck Rogers” gadgets will not provide an immediate solution to an Army with *Legacy Force* doctrine and organization. Therein lie the two overarching requirements for a rapid and phased process of change that has both near-term and long-term utility.

¹⁶ Gourley, 24.

¹⁷ Gourley, 24.

¹⁸ See the July issue of *Army: Magazine of the Association of the United States Army* for two exceptional articles that define in great detail the vision for the Future Combat Systems and their potential applications: “Future Combat Systems: A Revolutionary Approach to Combat Victory” by Scott R. Gouley and “The Defence of Fomblor’s Ford” by GEN Paul F. Gorman, USA Ret.

The bottom arrow on the *Army's Transformation Strategy* diagram represents the solution to the near-term and long-term problems. The *Interim Force* will provide the warfighting CINCs with a contingency response that is highly mobile (strategically, operationally, and tactically), yet retains a high degree of overmatch capability with particular emphasis placed on decisive action through close combat via dismounted infantry assault.¹⁹ The Army Chief of Staff has defined seven criteria with which to assess the effectiveness of the *Interim Force* as it applies to the near-term warfighting requirement as well as the *Objective Force* vision: responsiveness, deployability, agility, versatility, lethality, survivability, and sustainability.²⁰ It is absolutely critical to understand the implications and inherent challenges of this dual requirement. Though the goal of the Army's *transformation* actualizes with the fielding of the *Objective Force*, the *Interim Force* is a combat asset; it is not an experimental organization. When the first complete element of the *Interim Force* reports that it has achieved Initial Operational Capability (IOC),²¹ it is subject to deployment into combat.

Analysis of the Army's Transformation Strategy

GEN Shinseki has deliberately attached the full weight of his position to the transformation initiative. In a revealing article in the Association of the United States Army AUSA News, December 2000, GEN Shinseki is quoted as saying:

¹⁹ "Mission Needs Statement," 2.

²⁰ "Planning Directive #2," 2-4.

²¹ Initial Operational Capability is defined in the IBCT Charter on page 4 as a "unit trained to a C1 readiness level and prepared to execute its assigned operational mission". IOC for the first BCT will occur when the unit demonstrates its deployability and is prepared to successfully execute an external evaluation that fully assesses its employability in combat. This assessment will occur at one of the Army's three principle training centers: the Joint Readiness Training Center, Fort Polk, LA; the National Training Center, Fort Irwin, CA; or the Combat Maneuver Training Center, Germany.

“[those who] choose not to get aboard [the transformation program,] get out of the way. The Army’s on the march. We will not put our soldiers on point unprepared.”²²

Clearly a substantial portion of the military community is not convinced of the need for change, the solution provided, or the unprecedented pace at which *transformation* is proceeding. Arguably, such resistance is rooted in aforementioned peacetime conservatism and classic skepticism. Yet, it is also rooted in legitimate concern for weakening an undeniably lethal organization.

Certain aspects of *transformation* will remain necessarily murky as this process continues - it is a “work in progress”. Uncertainty inherently accompanies change. Proponents of chaos theory believe that innovation is greatest during periods of such uncertainty. Understandably, chaos is an unlikely bedfellow for the military. Yet, a reasonable amount of “work in progress” must be accepted and not reflexively rejected. On the other hand, the Army’s leadership must ensure that more sensitive aspects of *transformation* remain above the chaos.

The three prongs of the *Army’s Transformation Strategy* provide an event driven process to meet current and projected challenges without increasing force structure. But this approach comes at a cost. The first cost is fiscal. The incremental nature of *transformation* means that it is impossible to know exactly how much money recapitalization, research and development, and new interim brigades will cost. Clearly, there is not enough money currently in the budget to do all three. The implication is that the Army will need to continuously ask for more transformation dollars or it will need to cut recapitalization and other *Legacy Force* programs. These cuts could be in the form of reductions in up-grades to existing systems or cuts to programs like Grizzly and

²² “Shinseki: Get on Board ... or, Get Out of the Way,” *Association of the United States Army News*, December 2000, 1.

Crusader.²³ Such systems cuts demonstrate the risk assumed by the Army's leadership relative to the assumption that U.S. military dominance is secure for at least 10 more years.

The security that allows the Army's leadership to assume risk lies in the demonstrated effectiveness of the *Legacy Force* and the synergy of the joint armed forces team. A *Legacy Force* based around III Corps, Fort Hood, TX, is formidable, but it is not a solitary instrument of decision. It is a critical component of an air ground team – the actualization of Airland Battle doctrine. Therefore, the Army must closely coordinate *transformation* with the joint community. The Air Force and the Navy will remain key partners in not only moving the Army into a theater of operations, but also in massing fires from the air, land, and sea.

Global engagement also requires successful coalition interoperability and joint interdependence. Significant questions at the fringe of the Army's span of control remain as *transformation* and the fielding of the IBCTs become a reality. Joint and combined interoperability issues will surely create significant friction as Army programs evolve on an increasingly decentralized and lethal battlefield. While fratricide issues are at the forefront of interoperability concerns, fundamental combat effectiveness will be the most salient and far-reaching casualty if interoperability results in dysfunctional service relationships and international alliances. Joint transformation initiatives conducted through Joint Forces Command and multinational training exercises must mitigate these challenges without compromising classified or sensitive advances in technology and doctrine.

How the Army Got to this Point: Continuous Learning

²³ Grizzly is the next generation heavy engineer vehicle designed on the M1 Abrams chassis. The Crusader is the next generation of heavy self-propelled artillery designed to replace the M109A6 Paladin.

Transformation is not one man's "pet", nor is it one man's vision. On the contrary, GEN Shinseki is the most recent champion of a highly scientific, continuous learning process that has already spanned the tenure of two of his predecessors. GEN Gordon R. Sullivan became the Army Chief of Staff on 21 June 1991.²⁴ He inherited the Army of Excellence (AOE), a combat proven formation rebuilt in the shadow of Vietnam by the visionary fathers of Airland Battle doctrine: Creighton W. Abrams, William E. DePuy, Edward C. Meyer, Donn A. Starry, and Carl E. Vuono.²⁵ But unlike his predecessors, GEN Sullivan faced an entirely new set of conditions taxing the Army: "the end of the Cold War; large, congressionally mandated reductions in Army funding; concomitantly large reductions in the size of the force; and a series of contingency deployments."²⁶ He quickly realized that the Army that won the Cold War and Desert Storm must become a very different force. More importantly, he realized that the processes the Army built to effect change during the Cold War were deliberately slow and too inflexible. He needed an agile and responsive mechanism.²⁷

On 9 March 1992, GEN Sullivan announced his decision to radically alter the way the Army approached change. In a message to Army senior leaders, he announced a new concept for change entitled "Louisiana Maneuvers" in honor of GEN George C. Marshall's initiative to transform the Army in the years immediately prior to the United States' entry into World War II. Through a series of far-ranging exercises in Louisiana, Texas, and the Carolinas, GEN Marshall implemented sweeping changes that reshaped the Army's organization and doctrine.²⁸ Having

²⁴ James L. Yarrison, The Modern Louisiana Maneuvers, Center for Military History, US Army, v.

²⁵ For a detailed history and analysis of the genesis of Airland Battle doctrine, see "Deciding What Has to Be Done: General William E. DePuy and the 1976 Edition of FM 100-5, Operations" by Paul Herbert in *Leavenworth Papers*, no. 16 (1988):3-107.

²⁶ Yarrison, v.

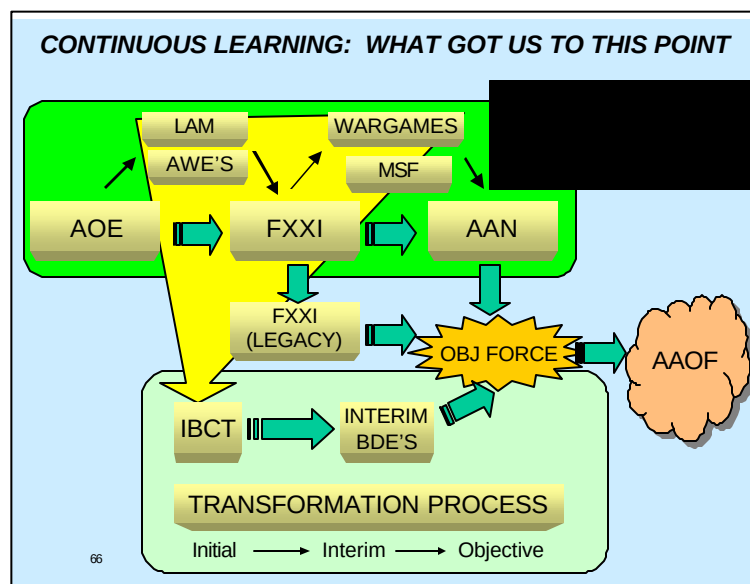
²⁷ Yarrison, v.

²⁸ For a detailed analysis on historic trends in military change, see Fast Tanks and Heavy Bombers: Innovation in the U.S. Army 1917-1945 by David E. Johnson and Military Innovation in the Interwar Period by Williamson Murray

read Christopher Gabel's The U.S. Army GHQ Maneuvers of 1941, GEN Sullivan was compelled by GEN Marshall's intent to conduct experiments that would be the basis for designing new units and battlefield processes.²⁹ GEN Sullivan further stated:

“Borrowing Marshall's title was a signal that business as usual was not good enough, that I was fostering innovation and growth in extraordinary ways, but that the outcome would not be completely foreign or threatening to the Army. I made it part of my office to signal that I - not merely my staff - was going to be personally involved.”³⁰

In the last months of 1991 and well into 1992, GEN Sullivan and his colleagues built a framework for iterative experimentation making extensive use of computer-based simulations to test proposed doctrine, procedures, organizations, and equipment. His objective was to allow the Army to arrive at a solution initially validated in simulation before changing policy and doctrine, investing in equipment, or reorganizing operational forces.³¹ From this point of departure, a series of computer, virtual, and live experiments and exercises paved the way for the current Army transformation (figure 3).



and Allan R. Millet. Both sources provide a detailed account of GEN Marshall's GHQ and the Louisiana Maneuvers.

²⁹ Yarrison, v-ix.

³⁰ Yarrison, 3.

figure 3 – The Army’s “Continuous Learning” Initiatives³²

In 1994, GEN Sullivan initiated the Force XXI Campaign. This step is important as it was the first toward integrating the results of the modern Louisiana Maneuvers and Advanced Warfighter Experiments (AWE) with a tactical unit’s equipment, organization, and doctrine. Force XXI encompassed a three-prong approach. The main thrust, Joint Venture, consolidated the Army’s effort under the headquarters of the United States Army Training and Doctrine Command. The designation of the 2nd Armored Division, Fort Hood, TX as the Army’s Experimental Force³³ was significant as it provided *transformation’s* initial link to the operational force and Fort Hood’s immersion in the Army’s digitization effort.

The second prong addressed the redesign of the institutional Army so that it could keep pace with the changing operational force. This aspect of change required review and modernization across the initial entry, NCOES, and officer schools and professional development systems and programs. A competent training base is absolutely essential to feeding the operational force with soldiers exposed to the baseline skills that are consistent with the unique requirements developed in the other aspects of the Force XXI and transformation initiatives.³⁴

The third prong included the activities of the newly organized Army Digitization Office. The digitization effort sought to capitalize on the prolific assets of the Information Age. “Automated, interactive exchanges of positional and other information ... provide[s] a common,

³¹ Yarrison, vi.

³² Brigade Coordination Cell, United States Army Training and Doctrine Command, “The Initial Brigade Combat Team (IBCT): The Road to Initial Operational Capability (IOC),” version 20 September 2000, URL: <ftp.150.192.1109.31:621/00925 rtioc.ppt>, accessed 22 November 2000, slide 66.

³³ Yarrison, vi.

³⁴ Yarrison, vii.

relevant picture of the battlefield.”³⁵ Digital links would enable responsiveness, anticipation, protection through dispersion, and fratricide reducing combat identification.³⁶

The process of aggressive concept development, experimentation, and computer assisted design continued through the tenure of GEN Sullivan’s successor, GEN Dennis J. Reimer. The Louisiana Maneuvers Task Force disbanded on 1 July 1996, but momentum for change had accelerated across the Army and matured significantly at Fort Hood and elsewhere.³⁷ Massive amounts of data and hands-on experience generated by the initiatives of the 1990s provided the basis for the IBCT Organizational and Operational Concept. It is in this context that the IBCTs are considered the logical next step and it is from this process that the IBCT’s equipment is considered “off the shelf” versus experimental.

The Army Transformation Campaign Plan

The Army framed the current vision for fielding a full spectrum, combat force as the *Army Transformation Campaign Plan*. It is an embedded process within the Army’s *Transformation Strategy* and is a reflection of the Defense Planning Guidance (DGP) for FY2001-2005. The DGP “states that dominant maneuver enables forces to gain and maintain control of the battlespace through the rapid, multidimensional application of information, engagement, and mobility capabilities”.³⁸ The *Army Transformation Campaign Plan* consists of three successive phases (Phase I - Initial Brigade Combat Teams, Phase II - *Interim Forces*, and

³⁵ Yarrison, vii.

³⁶ Yarrison, vii-viii.

³⁷ Yarrison, viii.

³⁸ “Mission Needs Statement,” 1.

Phase III - *Objective Forces*) that reflect objectives, conditions, measures of effectiveness, and lines of operations that fulfill the Army's responsibility to meet the DGP requirements.³⁹

Phase I – Building the Initial Brigade Combat Teams

Phase I of the *Interim Force* developmental process is the establishment of the first two Initial Brigade Combat Teams (IBCTs) at Fort Lewis, WA. The current plan to achieve Initial Operational Capability for the Initial Brigade Combat Teams employs a tailored methodology for change given the unique constraints of the post-Cold War environment. The Army is leveraging “off-the-shelf” equipment, to include technology insertions as applicable, to stimulate the development of doctrine, organizational design, and leader training. A combination of rapid acquisition and analytic rigor will assist in integrating the institutional, operational, and developmental organizations of the Army.⁴⁰ Initially, the main effort is the transformation of the first IBCT, 3rd Brigade of the 2nd Infantry Division (3/2 IN), with an IOC goal of December 2001.

GEN Shinseki expeditiously allocated significant human and material resources to supporting the main effort of the *Transformation Campaign Strategy and Plan*. Additionally, he clearly fixed responsibility for its execution. The Army's Training and Doctrine Command (TRADOC) is designated the executive agent within the Army Management Team consisting of TRADOC; Army Material Command(AMC); Forces Command (FORSCOM); the Army Staff (ARSTAF); Assistant Secretary of the Army (Acquisition, Logistics, and Technology)

³⁹ Office of the Chief of Staff of the Army (DACS-ZA), “Transformation Planning Directive #1,” URL: [http://www.tradoc.army.mil/transformation/Data Pages/Planning Directive 1.htm](http://www.tradoc.army.mil/transformation/Data%20Pages/Planning%20Directive%201.htm), accessed 13 November 2000, 1.

ASA(ALT); Army Test and Evaluation Command (ATEC); Director of Information Systems for Command, Control, Communications, and Computers (DISC4); and Industry Systems Integrators. MG James M. Dubik became TRADOC's Deputy Commanding General for Transformation (DCG-T) and served as the chair of the Overarching Integrated Process Team (OIPT). This OIPT is composed of combat developers, material developers, training developers, testers, analysts, evaluators, and technical subject matter experts from across the Army and industry.⁴¹ Additionally, the DCG-T built a Brigade Coordination Cell (BCC) composed of individuals from across the Army representing all the Battlefield Operating Systems (BOS), AMC, and ATEC. Under the leadership of MG Dubik, the BCC had to take the IBCT plan from concept to reality in coordination with the FORCOM force provider - I Corps and 3/2 IN.

The first order of business at Fort Lewis, WA was translating the various transformation planning directives, the Transformation Charter, and the IBCT Organizational and Operational Concept⁴² into an aggressive transformation plan. While there was an abundance of input associated with this endeavor, the overarching constraint was the requirement to achieve IOC by December 2001. Therefore it was essential to build a plan based on guiding principles that maximized efficiency. This plan became "The Road to IOC". The genius reflected in this plan is its integration of the essential elements of military innovation in a compressed timeline.

A Philosophy for Change

Before addressing the specific attributes of the "Road to IOC", a discussion of the philosophy for change is required to understand the logic of its course. Fundamentally, change is

⁴⁰ United States Army Training and Doctrine Command, "Initial Brigade Combat Team (IBCT) Charter (Terms of Reference for Brigade Transformation Task Force)," URL: <http://www.tradoc.army.mil/transformation/Data/Pages/Charter.htm>, accessed 13 November 2000, 1.

⁴¹ "Initial Brigade Combat Team Charter," 1.

the source of anxiety for large organizations, especially those organizations steeped in tradition and esprit. Moreover, excluding this inherent resistance, tension typically develops due to the intellectual challenges associated with dramatic change in the basic elements of military innovation: technology, mechanical and material innovation; doctrine, the fundamental principles by which the military guides actions in support of national objectives; and organization, the definite structure of a military element prescribed by a component authority. Change among these elements is essential to the growth and maturity of any military formation. Yet, while this basic truth is well understood, synchronized and accelerated change during peacetime is atypical. Clearly, the nation that deliberately cultivates innovation in this trio will significantly enhance its combat potential.

Once the restraints of peacetime complacency and dogmatic military conservatism are breached, the challenge for the proponents of change lies in the proper sequencing in the implementation of innovation across the three inherent elements. Within the context of military affairs, technology has played a central role in determining how nations conduct war. Ideally, however, doctrine should provide the requirement for adjustments to the organization and requirements for new technology. Yet, by definition, the full potential of NEW technology is never fully realized until it is well integrated within the organization and tested against its doctrinal requirements. Therein lies the quandary and inherent tension. The key to mitigating this tension is to facilitate the evolution of technology, doctrine, and organization in a parallel and simultaneous process of change. Linear and sequential evolution can lead to integrated change; however, this developmental process is exceptionally time consuming and expensive (figure 4). Moreover, sequential change is usually driven by technological innovation.

⁴² The entire IBCT Organizational and Operational Concept is available on the TRADOC website: www.tradoc.army.mil

Technology may also be a limiting factor in parallel evolution if technological products fail to meet expectations or assumptions. Primarily, simultaneous evolution in doctrine and organization based on technological assumptions may be irrelevant if technological expectations remain unrealized.

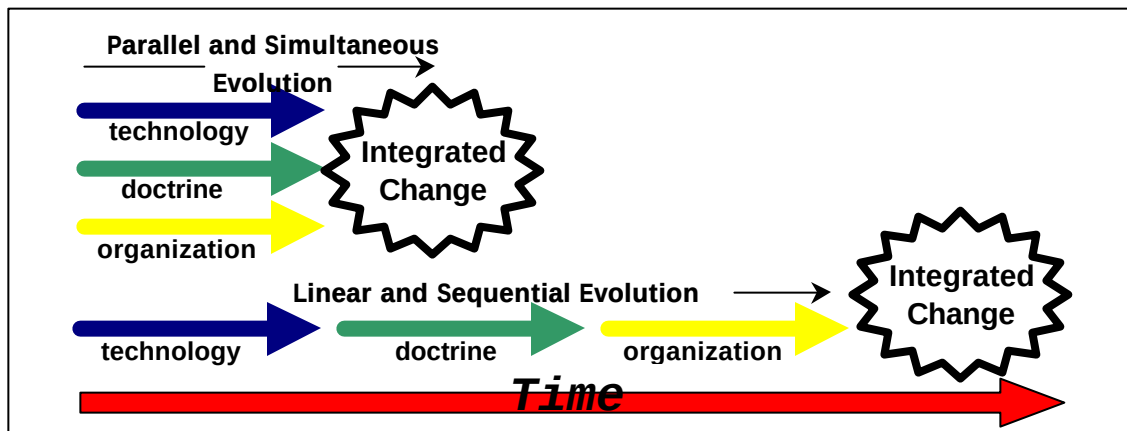


figure 4 – Parallel and Simultaneous Evolution vs. Linear and Sequential Evolution

Too often, the process of change among these three elements requires a forcing function. In this instance, the relentless tide of technological change that leaps ahead of rigid doctrinal and organizational concepts is only revealed when nations clash in combat. The most common example is when doctrine becomes dogma, forcing stagnation in organizational structure, while technology continues to progress. When an army goes to war under this circumstance, doctrine and organizational structure are forced to evolve (figure 5). The ramifications are disastrous as they frequently result in the catastrophic loss of blood and treasure. Such results illustrate GEN Shinseki's reference to *America's first battles*. It is far better to embrace change through

visionary capabilities that enables decisive action; or, if properly leveraged, avoids bloodshed all together.⁴³

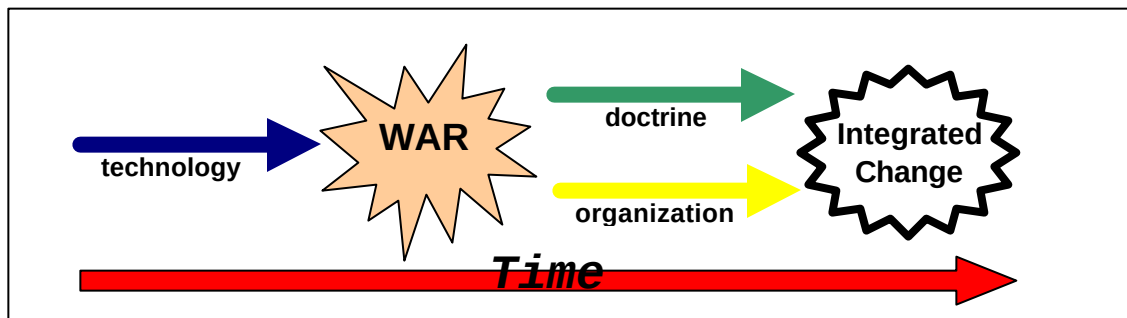


figure 5 – War as a Forcing Function to Change

The “Road to IOC”

The “Road to IOC” is the model for parallel and simultaneous change. It is a scheduling and training synchronization tool that effectively embraces parallel evolution in the basic elements of technology, doctrine, and organization. It maximizes efficiency by incorporating simultaneity through multi-echelon training that is the product of input from all the BOS representatives in the BCC. Training also progresses in an iterative manner, fully capitalizing on the benefit of a comprehensive analytics schemes managed by ATEC representatives. ATEC also works in coordination with AMC representatives to provide a comprehensive assessment program for the various items of equipment that facilitate the technological axis.⁴⁴

The framework of the “Road to IOC” reflects guidance from initial planning directives. The Initial Brigade Combat Team Charter from the *Army Transformation Campaign Plan* directs a further sub-phasing of Phase I (IBCT) to the *Interim Force* developmental process (figure 6). Phase Ia (the IBCT Developmental Phase) is the plan to reorganize and conduct developmental

⁴³ The author’s concept of the three elements of change within the context of military innovation is the result of discussion with MG James M. Dubik, USA and the result of conference room discussion, Conference Group 2, Marine Corps Command and Staff College, AY 2000-2001.

⁴⁴ Brigade Coordination Cell, United States Army Training and Doctrine Command, “The Initial Brigade Combat Team (IBCT): The Road to Initial Operational Capability (IOC),” RRC version 2, Fort Lewis, WA: March 2000.

training of the first IBCT using loaner and surrogate equipment.⁴⁵ Phase Ib is the fielding and support of new equipment and attendant organizational training. A significant aspect of this phase is the transition from surrogate equipment through New Equipment Training (NET) and New Organizational Team Training (NOTT). Phase Ic (the IBCT Operational Phase) focuses on unit collective training and assessment. A capstone exercise provides the measure of validation for concluding this phase. Phase Id engages planning the development and fielding of subsequent forces.⁴⁶ A significant aspect of the “Road to IOC” is the linkage between developmental and operational training and the reduced duration of post NET training.

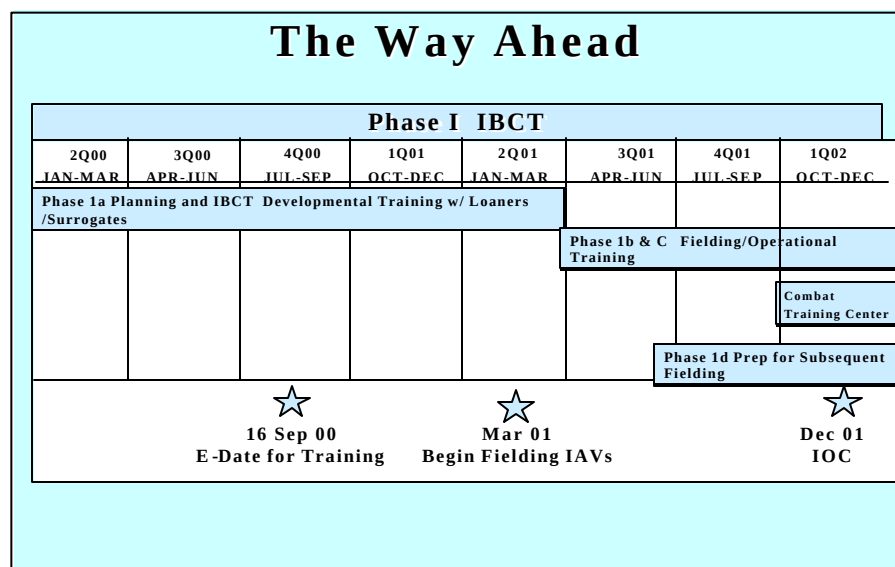


figure 6 – Phase I (IBCT) of the Army Transformation Campaign Plan⁴⁷

MG Dubik articulated a concise set of guiding principles to assist the BCC in putting meat on the bones of the IBCT Charter’s framework:

- Set an aggressive path that leads to IOC in DEC 01.
- Aim at the long-term, but focus on the short-term.

⁴⁵ Loaners are combat vehicles on loan from Allied countries: Canadian LAVs, Italian Centaurs, etc. Surrogates are vehicles and systems that represent equipment that will be fielded in the future. Loaners and surrogates are highly effective in initiating developmental training in the absence of systems still in the procurement cycle.

⁴⁶ “Initial Brigade Combat Team Charter,” 3-5.

⁴⁷ “Transformation Overview,” slide 17.

- Identify a two-phased training strategy and synchronize other requirements to it.
- Stay true to FM 25-100/101 approach: PPEAR [plan, prepare, execute, assess, re-train], performance oriented training, T-C-S [task, conditions, standards], AAR [after action review], long-range / short-range plans.
- Set minimum standards and move out.
- Accept the ambiguity of “building on the move”.
- Build the requirements for the first IBCT, then the second.⁴⁸

These guiding principles are the equivalent of the commander’s initial planning guidance in the context of military decision-making. From this initial guidance, the BCC embarked to collect and analyze the high volume of material that encompassed the planning assumptions that defined the IBCT requirements. These planning assumptions can be characterized as defining the enemy and friendly situation; another critical initial step in military decision-making and planning.

The 21st Century Operational Environment

Unlike the Cold War force, the IBCT is not designed to defeat a specific force template. It is “capabilities” versus “threat” based. These capabilities are designed to meet the significant challenges of the 21st Century operational environment. Two aspects of the operational environment demand exceptional flexibility: the vast geographic spatial relationships inherent with global engagement and the varied threat composition and disposition embedded across the Spectrum of Operations. A quick glance at this environment reveals a further complication in that the IBCT faces worldwide deployment into urban areas, complex terrain, and open/rolling terrain with weak and immature infrastructure (figure 7).⁴⁹

Today’s target set includes mounted and dismounted infantry, light and medium armored vehicles, and the full compliment of BOS: artillery, ADA, and C4ISR (command, control, communication, computers, intelligence, surveillance, and reconnaissance) facilities and

⁴⁸ “The Road to IOC” version 2 for RRC, slide 5.

platforms. Additionally, the global proliferation of weapons technologies, applied asymmetrically, facilitates unique challenges to U.S. forces. These challenges are increasingly sophisticated and difficult to template. A significant threat lies in high technology niche capabilities focused on perceived vulnerabilities, including information systems attacks. Nuclear, biological, and chemical hazards always remain at the forefront of threat considerations.⁵⁰ “These threats will primarily emanate from failed and failing states, regional or state-centered threats, transnational threats, and the rise of a potential major military competitor. Although conflicts with non-state actors such as international terrorist groups and drug cartels will increase, state-on-state conflict will persist and will remain the most hazardous mode of war.”⁵¹

⁴⁹ “Transformation Overview,” slide 7.

⁵⁰ “Transformation Overview,” slide 7.

⁵¹ United States Army Training and Doctrine Command, “Chapter 2 Assessment of Operational Environment,” URL [http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chap 2 18 APR with Apend ABCD\(2\).doc](http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT%20O%20and%20O/Chap%202%2018%20APR%20with%20Apend%20ABCD(2).doc), accessed 8 November 2000, 1. For a complete review of the Army’s view of the current and emerging operational environment, see Chapter 2: Assessment of Operational Environment from the Organizational and Operational Concept dated 18 Apr 00 DRAFT. This document has 44 pages of text and charts that provides a comprehensive review and analysis of “the threat”. Additionally, it contains charts that quantify the criteria that establish situational complexity. Additionally, reference DIA validated series on Land Threat Environment projections, NGIC-1100-600 Series, volumes 1-6.

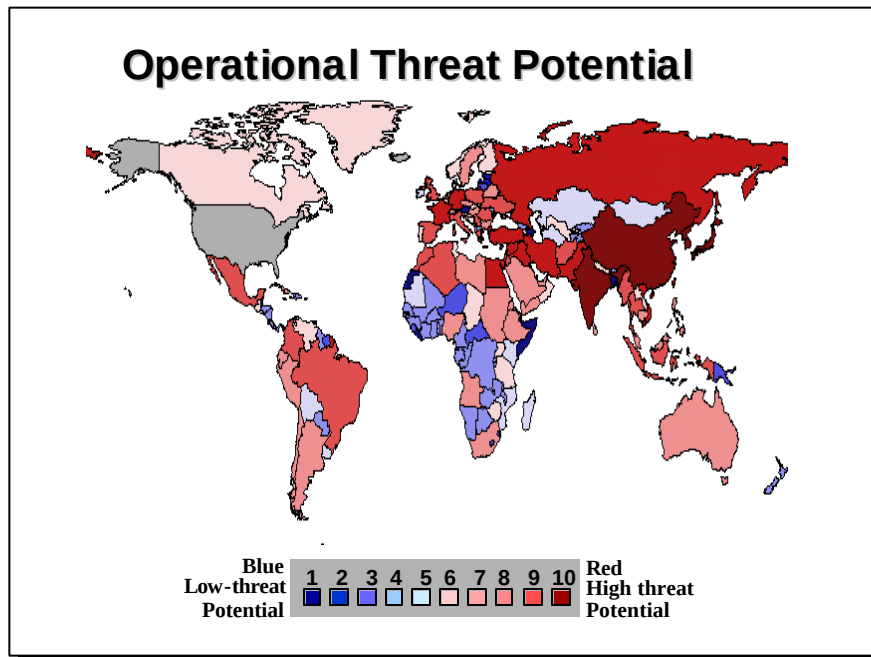


figure 7 – Global Perspective on Threat Potential⁵²

The IBCT Capability Requirement

After assessing the threat/enemy situation, the BCC sifted through the requirements for full spectrum responsiveness; the friendly situation. There is an overarching requirement to ensure that the IBCT can deploy, in its entirety, over a period of 96 hours. This force must also be capable of integration with any given higher headquarters: CINC, JTF, MEF, corps, or division. In Stability and Support Operations (SASO), the IBCT is the guarantor combat force. Depending on the composition of friendly forces, it will protect the joint and/or coalition peacekeeping or peace enforcement organizations. It may also be required to initially separate belligerents. In Small Scale Contingencies (SSC), the IBCT will prevent, contain, stabilize, or terminate emergent situations. In Major Theaters of War (MTW), the IBCT will fight as part of a division. It has the capability of conducting supporting attacks or conducting the division's

⁵² "Transformation Overview," slide 6.

main attack in coordination with other brigades. Additionally, the IBCT is capable of conducting economy of force, reconnaissance, screening, and limited guard actions.⁵³

In designing the “Road to IOC”, the BCC considered how to best meet today’s requirements while simultaneously anticipating future needs. The solution came in blending the salient, positive qualities of the *Legacy Force* (figure 8). These qualities facilitated the design of the IBCT’s operational characteristics, its overarching training methodology, and institutional support requirements.

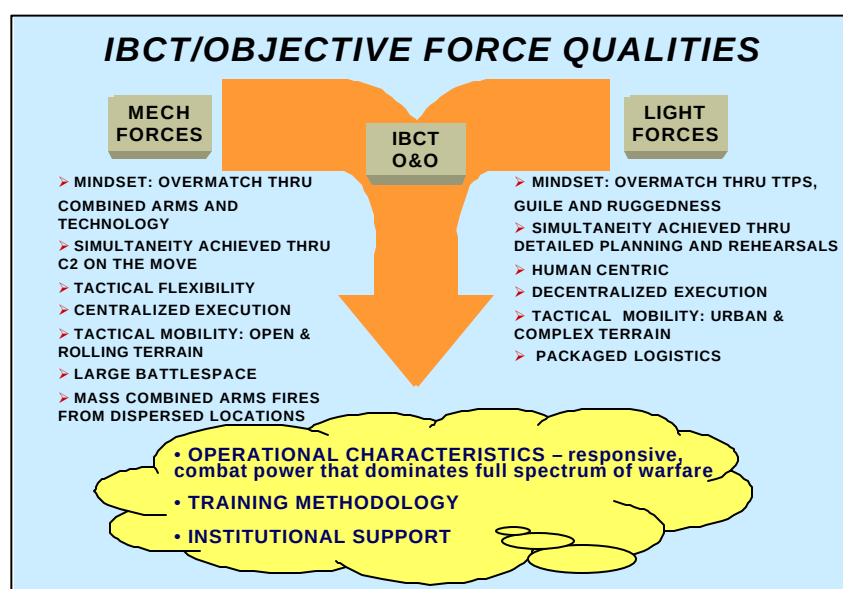


figure 8 – Blending the Qualities of the Legacy Force⁵⁴

IBCT/Objective Force Qualities

The principle quality defining the IBCT’s operational characteristics is “responsive, combat power that dominates full spectrum warfare”.⁵⁵ While the most publicized aspect of the *Army transformation* is the acquisition of new materiel and systems, the emphasis for operational success lies in human factors. First among the blended qualities is a requirement for

⁵³ “Transformation Overview,” slide 9.

⁵⁴ “The Road to IOC” 20 SEP 00, slide 23.

⁵⁵ “The Road to IOC” 20 SEP 00, slide 23.

a mind-set that internalizes overmatch and full spectrum dominance⁵⁶. The core of the IBCT is tough, self-reliant leaders and soldiers with the fortitude to outfox and outfight any enemy. Distributive and decentralized operations throughout a greatly increased battlespace require highly flexible and versatile leaders. These human attributes are balanced with proven technology that introduces internetted combined arms to the battlefield. Mobility platforms enable maneuver while uniformly allowing high strategic, operational, and tactical mobility.⁵⁷

The IBCT's training methodologies include an emphasis in live training as the core training avenue to achieve desired blended qualities. Innovations in virtual and constructive training sustain and enhance the transformation process and greatly assist overall training efficiency. "Special skill" training evokes new behavioral qualities focused on cohesion and problem solving. These qualities greatly assist in building multi-functional soldiers,⁵⁸ expert leaders, and competent staffs.⁵⁹ Ultimately, the demands of the IBCT's blended qualities and the corresponding training strategy will matriculate into the Army's institutional support infrastructure.⁶⁰

Technology

There is a certain sensitivity that *transformation* zealots feel toward the overemphasis placed on the technological innovation occurring in the IBCT. America loves gadgetry, but American soldiers are suspicious of experimentation in combat formations. The strength of a fighting unit is measured by physical and mental toughness, technical competence, discipline, confidence, and esprit. Moreover, experimentation is best conducted in the laboratory where

⁵⁶ See note 6 for definition of "overmatch". "Full Spectrum Dominance" requires friendly forces to be equally capable of achieving "overmatch" throughout all aspects of the Spectrum of Conflict.

⁵⁷ "The Road to IOC" 20 SEP 00, slide 24.

⁵⁸ "Multi-functional soldiers" refers to soldiers that transcend a specific MOS (e.g. all infantry MOSs (11B, 11C, 11M) will merge into a single MOS coding. This coding implies proficiency in all the specialties within the MOSs' previous codings).

⁵⁹ "The Road to IOC" 20 SEP 00, slide 25.

failure leads to a new statistic for analysis; not on the battlefield where failure leads to casualties. This premise does not dismiss the necessity for testing and change, it simply implies that “a better mouse trap” does not win wars, especially if that “mouse trap” does not live up to expectations. Therein lies the requirement that the IBCT will leverage “off the shelf equipment” that requires no additional experimentation. Much like the process of deriving operational qualities by blending the strengths of the *Legacy Force*, the IBCT will leverage the best weapons, communications equipment, “own the night” capabilities (lasers and active and passive night vision), automation/information systems, sensors, and mobility assets available to *heavy and light forces*.

The technological component that has received the most attention is the Interim Armored Vehicle (IAV). The IAV requirements are a compromise between high strategic mobility and tactical mobility, survivability, and lethality.⁶¹ The IAV will ultimately provide a common platform with three variants for all combat vehicles. The first variant is the Infantry Carrier Vehicle (ICV). It will be multi-purpose with reconnaissance, mortar carrier, anti-tank guided missile, fire support, NBC, medical, command, and engineer suitability. The second variant is the Mobile Gun System (MGS) that will provide direct, rapid fire to support infantry-centric forces (e.g. bunker busting). The third variant is a 155mm self-propelled howitzer. The Key Performance Parameters (KPPs) for the IAV emphasize previously mentioned deployability and interoperability at the greater Army and joint level. Every piece of equipment must be C130 deployable.⁶²

⁶⁰ “The Road to IOC” 20 SEP 00, slide 26.

⁶¹ “Mission Needs Statement,” 3.

⁶² Tank-Automotive and Armaments Command, “Operational Requirements Document for a Family of Interim Armored Vehicles (IAV) ACAT I, Prepared for Milestone I Decision,” URL: <http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/iavord.htm> accessed 13 November 2000, 7.

“To be C130 transportable, IAV must not exceed 13,000 pounds maximum axle weight on the treadways of C130 aircraft, and its combat capable deployment weight must not exceed 38,000 pounds GVW (19 tons) to allow C130 transport of 1,000 nautical miles without requiring a USAF waiver for maximum aircraft weight on fixed runway.”⁶³

During a Platform Performance Demonstration (PPD) at Fort Knox, KY (6-19 January 1999), 35 vehicles from 11 contractors and six foreign countries conducted extensive trials and exercises. This event was not a selection process. It was an initiative to explore available vehicles for IAV suitability and potential for technological insertion. It was also a forum to refine the Key Performance Parameters (KPPs) and the Operational Requirements Document (ORD) as well as a forum to educate military industry on those requirements. Industry took this information and modified their systems to optimize their suitability to the ORD. Six months later, a final competition occurred at Aberdeen Proving Ground, MD to chose a winner. On 17 November 2000, the Army awarded General Dynamics Corp., and General Motors Corp., the four billion dollar IAV contract to build 2,131 Light Armored Vehicles (LAV IIIs), an eight-wheeled, light armored vehicle.⁶⁴

A significant amount of anxiety revolved around this niche of the transformation process. Cold War, platform-centric fixation led to the belief that the transformation process would sink or swim on the IAV versus the strength of the IBCT's integrated systems. The second source of tension centered on the large sum of money associated with awarding the IAV contract. As a result, the Department of the Army devoted enormous energy and resources to the selection of this platform. The specific selection of the IAV is of little concern to the BCC, as long as it provides an adequate platform as required in the IBCT Organizational and Operational Concept and the IAV ORD. The AMC branch of the BCC is responsible for coordinating with the Army

⁶³ “Operational Requirements Document,” 7.

⁶⁴ “Army gets improved light-armored vehicles,” Marine Corps Times vol. 2, no. 47 (4 December 2000): 23.

Management Team on all material acquisition and orchestrating the integration of the IAVs during phase Ib.

A less publicized but significantly more revolutionary application of technological innovation is the digital situational awareness equipment that facilitates network-centric warfare. “This internetted interoperable capability is based on IAV hosting C4ISR systems which enable a common relevant picture, scaled to fit specific level of interest.”⁶⁵ The Army Battle Command System (ABCS) establishes a common ground for interoperability between the various information systems from across the BOS: Maneuver Control System (MCS), Advanced Field Artillery Tactical Data System (AFATDS), Forward Area Air Defense (FAAD), Combat Service Support Control System (CSSCS), and Integrated Electronics (INTEL) to name a few.⁶⁶ The Force XXI Battle Command Brigade and Below (FBCB2) system is the crown jewel of internetted combined arms. Continuous situational awareness of friendly forces information and substantial enemy forces information is achieved through the integration of various, real-time positioning systems, digital map sheets and precision targeting/target acquisition technologies. Additional unit-level logistics and combat orders data is immediately available through FBCB2 without significant collection and transmission requirements. FBCB2 systems terminals are employed down to the crew/vehicle level. The potential for increased lethality across the BOS, increased logistics responsiveness, and the prevention of fratricide are key advancements in this system.⁶⁷ As of today, dismounted digital systems are not employed in the IBCT; they are still in the experimental stage.

Organization

⁶⁵ “Operational Requirements Document,” 7.

⁶⁶ “The Road to IOC” 20 SEP 00, slide 74.

The organizational design of the IBCT represents a collection of units previously task-organized from function-specific organizations (figure 9). This is a significant departure from classic Table of Organization and Equipment (TO&E) units. The decisive combat elements are infantry-centric with optimal force structure for success in urban and complex terrain.

Previously, the Army conducted combined arms operations at the battalion level through task organization. The IBCT contains organic combined arms down to the company level.⁶⁸ Note the introduction of heavy mortars (2 x 120mm) and Mobile Gun Systems at the company level. A significant addition of Military Intelligence units and sensor assets, as well as the introduction of a Reconnaissance, Surveillance, and Target Acquisition squadron, reflect a significant increase in situational understanding capability. Combat support (CS) and combat service support (CSS) units are tailored to maximize reach operations for strategic, joint, and combined fires and effects, C4ISR, and CSS operations.⁶⁹ The desired result is a brigade capable of “decisive action from deliberate maneuver and dismounted infantry assault supported by ‘point and shoot’ fire support” and internettted combined arms.⁷⁰

⁶⁷ “The Road to IOC” 20 SEP 00, slides 36-37.

⁶⁸ “The Road to IOC” 20 SEP 00, slide 30.

⁶⁹ For detailed information on the organization of the IBCT and its desired capabilities, see the Organizational and Operational Concept.

⁷⁰ “The Road to IOC” 20 SEP 00, slide 35.

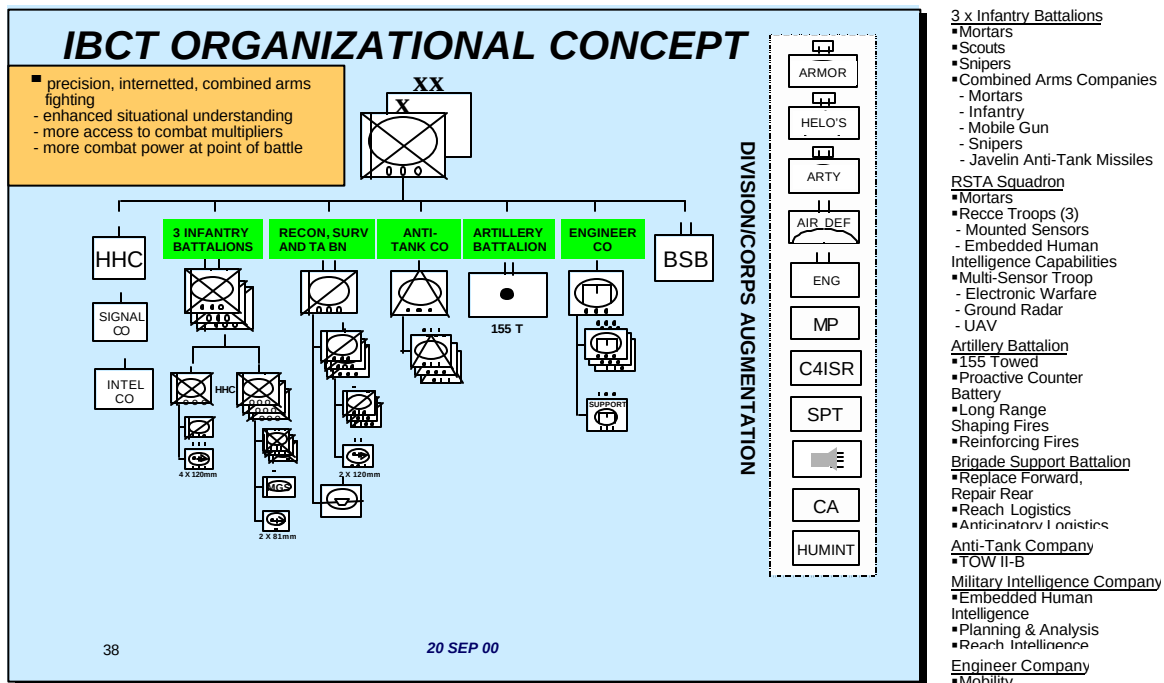


figure 9- The IBCT Organization⁷¹

Doctrine

Two factors have established a mandate for significant revision in Army doctrine: low-end military operations and network-centric warfare based on internetted combined arms. Existing doctrine is almost exclusively tailored for high-end operations. Very little fighting or training doctrine assists leaders in training soldiers in conducting SASO and SSC missions. For over a decade, Army units have deployed into peacekeeping and peace enforcement operations with no doctrinal foundation for executing their requirements. In most cases, leaders reviewed After Action Reviews (AARs) and Standard Operating Procedures (SOPs) from units previously employed in similar SASO and SSC missions.⁷² They then embarked upon training programs to prepare their units for employment. This process of alert, train, and deploy highlights a significant weakness in flexibility and responsiveness.

⁷¹ "The Road to IOC" 20 SEP 00, slides 38-39.

⁷² Based on the authors discussions with key members of the BCC.

The goal for emerging doctrine is to build fighting and training doctrine that facilitates a highly responsive organization that exploits speed and initiative. This requires Army units to train, alert, and deploy fully confident and capable of conducting SASO and SSC missions with the same skill and competence as it has conducted its MTW operations.⁷³ The forum and media for articulating this doctrine will remain the same Field Manuals (FMs), Training Manuals (TMs), and Mission Training Plans (MTPs) format with which the Army is familiar. Additionally, the same strict adherence to rigorous tasks, conditions, and standards will remain the hallmark of mission preparedness. This standard requires doctrine to incorporate tasks that facilitate SASO and SSC missions.⁷⁴

One of the most compelling aspects of the IBCT *transformation* is the methodology for doctrinal development and integration. Doctrinal development remains a TRADOC “school house” requirement. The various branch and functional headquarters maintain proponentcy for draft and final publication of all periodicals; the BCC provides the vehicle for integration, channeling publications to the IBCT, capturing unit-level feedback, and re-distributing the feedback to the “school house”. This generates an iterative cycle of development and integration conducted simultaneously with the training program and parallel to the relevant echelon of training. As a result, doctrinal revision is rapidly, yet incrementally, implemented through bottom-up refinement as the organization builds and technology arrives.⁷⁵

The specific plan for executing doctrinal development, integration, and revision follows a logical path. Draft FMs, skill manuals, and MTPs are the foundation for the developmental training (phase Ia) process, whereas final coordinating drafts provide the foundation for

⁷³ “The Road to IOC” 20 SEP 00, slide 31.

⁷⁴ The various branch and functional systems proponents are the best source for specific SASO and SSC doctrine. Fort Benning for example has produced draft doctrine that entails the task “area presence”, a clearly low-end doctrinal construct.

operational training (phase Ic). The initiation of the process was the development of a Centralized Training Task List (CTTL) derived from the Organizational and Operational Concept. This task list is not a Mission Essential Task List (METL), but is a baseline from which BOS and functional proponents can proceed with the revision of subtasks, conditions, and standards derived from existing manuals and the Organizational and Operational Concept. The delivery of draft doctrine is phased to coincide with the training plan - 60 days prior to scheduled training, at a specific echelon, by a specific BOS or functional system.⁷⁶

Analytics

The ATEC branch of the BCC is responsible for conducting a highly organized data collection and assessment plan for organizational and doctrinal refinement. This assessment mechanism is a significant asset to the BCC and the operational unit. External data collection significantly reduces the workload for the force provider and ensures better iterative, AAR products. ATEC's mandate relative to the IBCT is to ensure that the "Road to IOC" maintains fidelity with the FM 25-100 process and sufficient DTLOMS (Doctrine, Training, Leaders, Organization, Material, and Soldiers) feedback is available to the institutional Army. To achieve this mandate, ATEC representatives built a data collection plan for each training event during the developmental and operational training (figure 10). Feedback is based on two sources: unit observer controllers and data collectors. The data collectors focus their analytic effort on Organizational and Operational Concept unique behaviors. Rapid data analysis and packaging

⁷⁵ "The Road to IOC" version 2 for RRC, slides 18-20, 22-23, 25, 27.

⁷⁶ "The Road to IOC" version 2 for RRC, slides 18-20, 22-23, 25, 27.

facilitates feedback to the appropriate BOS proponents and the operational unit after each training iteration.⁷⁷

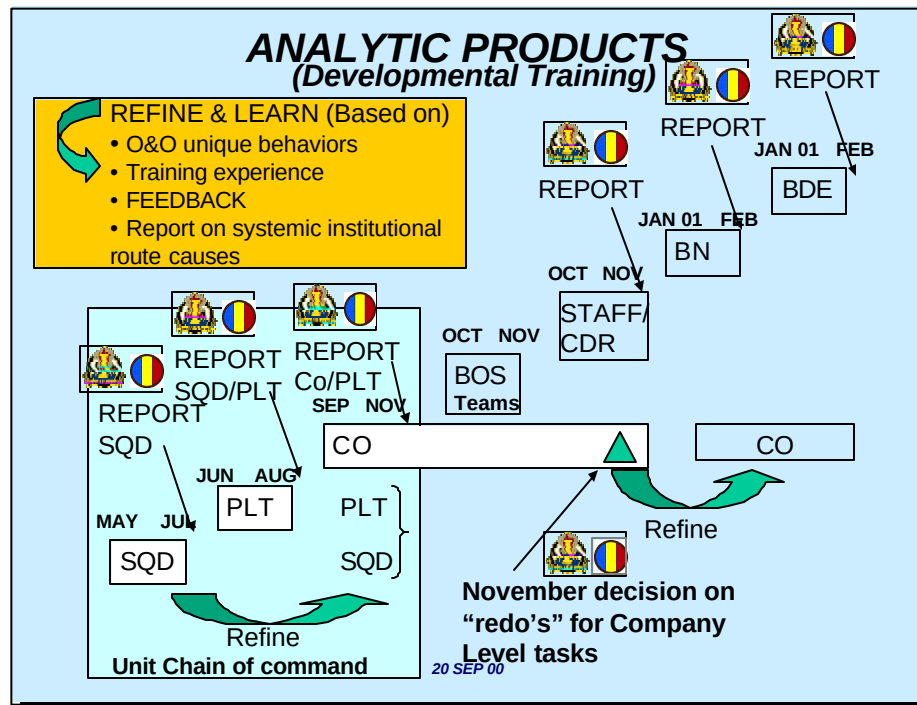


figure 10 – Phase Ia (Developmental Training) Analytics Plan⁷⁸

A significant aspect of the analytics plan during the operational phase is the insertion of an IAV Initial Operational Test and Evaluation (IOTE) (figure 11). This assessment will provide immediate feedback on the IAV as well as its embedded ABCS technology. ATEC will evaluate the complete IAV system of systems at the infantry company level through several iterations of specific Organizational and Operational Concept unique missions. The focus of data collection and analysis is the operational effectiveness and suitability of C4ISR and Organizational and Operational Concept unique behaviors.⁷⁹

⁷⁷ “The Road to IOC” version 2 for RRC, slides 34-41.

⁷⁸ “The Road to IOC” 20 SEP 00, slide 72.

⁷⁹ “The Road to IOC” 20 SEP 00, slide 74.

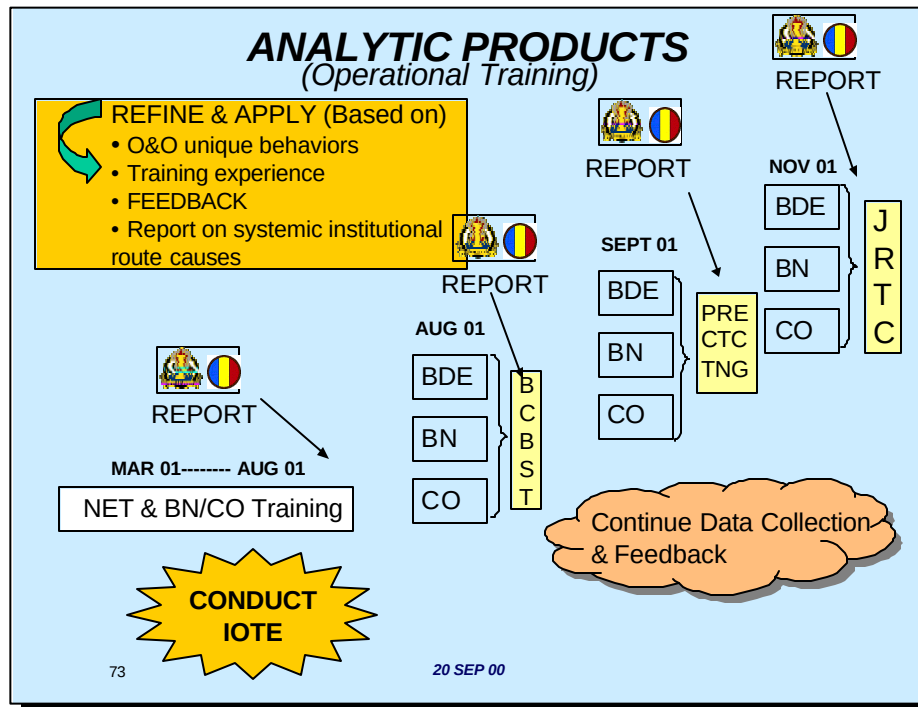


figure 11 – Phase Ib (New Equipment) and Phase Ic (Operational Training) Analytics Plan⁸⁰

Analysis of Objective Force Qualities

The Army makes a strong case in highlighting the need for a more responsive force that balances deployability with lethality. The *Objective Force* qualities are based on a national strategy, threat potential, the latest proven hardware, and decades of force analysis. More importantly, the plan to create a better Army is deliberate, event driven, and well resourced. The challenge remains in translating steep personnel and equipment requirements from concept into reality.

An obvious requirement for the Army's increasingly decentralized and technical combat formations is a profoundly talented soldier. At the heart of the mandate for high quality soldiers lies a timeless concern – the Army's ability to recruit and retain soldiers in a competitive market. The distributed and decentralized battlefield anticipates the requirement for soldiers with all the

⁸⁰ "The Road to IOC" 20 SEP 00, slide 73.

physical and mental discipline of the profession's colorful past as well as an increased demand for mental agility, raw intelligence, and initiative. Additionally, operating and maintaining complex weapons and sensors requires technical skills that are increasingly compatible with the civilian sector. Such compatibility will lead to increased retention problems as civilian industry attempts to recruit skilled labor, trained at government expense. Without significant revitalization of the Army's personnel management system, the Army may not be able to attract and retain the talent required to fully realize *transformation's* potential.

The individual soldier's flexibility and competence are a direct reflection of the dynamic requirements of our future forces. A fundamental quality of the *Interim* and *Objective Forces* is their ability to operate with uniform proficiency and effectiveness across the spectrum of operations. This premise is the crux of the debate of whether or not any tactical formation is capable of attaining the training and proficiency required to operate equally effectively in high-end and low-end conflict. The IBCT and the *Interim Force* are designed for such a role. If the IBCT demonstrates that it compromises its ability to fight at the high-end by training on low-end tasks, it has compromised its fundamental contract with the American people.

The other side of this debate proposes that certain forces be designated as peacekeeping formations while others are husbanded as warfighting formations. Transformation technology would be pertinent and useful in either case, the difference would be reflected in doctrine and perhaps organization. The challenge with this proposal is that the OPTEMPO for the peacekeepers would be significantly higher than that of the warfighters. Additionally, if the premise follows that peacekeeping –specific units are ineffective at warfighting, then the overall size of the Army would have to increase in order to maintain a substantial warfighting core. Such a proposal would be cost prohibitive.

Another significant obstacle lies in the technology venue. One of the most significant limiting factors in the Information Age is bandwidth. Transferring large amounts of data via fiber optic cable is frequently an exercise in frustration for anyone attempting to quickly “surf the net” from the sterile environment of their home. Until recently, the data processor and memory capacity on personal computers (PCs) exacerbated the slow processing time required to download large data files. Today, data processing hardware is fast enough to process large amounts of data in exceptionally brief amounts of time. While the processing time is not instantaneous, it far exceeds the rate at which data is transferred through the various data conduits, fiber optic cable being the most prolific. These data transfer constraints are directly mirrored in the Army’s digital situational awareness systems that are the hub of network-centric warfare. Such a constraint could severely limit the performance or quality of digital systems and products.

The Army’s digital information systems rely on digitally-transferred data transmitted via FM. As digital systems continue to proliferate throughout the Army’s tactical functions, demand for increased bandwidth could become critical. In simple terms, bandwidth defines the volume of data that can travel through a particular conduit over a particular time interval. This finite measurement of capacity demonstrates an inverse relationship between the number and size of data files versus the amount of time required for data transfer. A direct ramification of this limitation is the choice between more rapid transfer of smaller files or a congested data conduit laboriously passing large data files over a protracted period of time.

Network-centric systems will not be able to fully leverage their potential until the bandwidth issue is resolved. Increased bandwidth is not the solution as increased bandwidth will only breed even larger data transfer requirements. The solution is bandwidth management. In

emerging doctrine, the Army must address bandwidth management and discipline in the same manner it has managed traditional radio discipline. Data transfer control measures must be addressed and synchronized in the same detail as any other facet of friendly forces critical capabilities. Additionally, data transfer and transfer devices must be protected with the same vigilance as any other aspect of essential elements of friendly information.

Phase Ia - Developmental Training

As of December 2000, “the training and organization of the Initial Brigade Combat Teams (IBCTs) at Fort Lewis, [WA], is progressing steadily and keeping with the planned schedule, according to [MG] James M. Dubik”.⁸¹ 3/2 IN crossed the *transformation* line of departure in March 2000. Iterative training began at the lowest level with extensive support from the institutional Army. It is critical to note that many organizational assets were still assembling and reorganizing across the greater Army as the transformation concept began to materialize into reality.

Training from March to August 2000 began at the lowest level with leader and individual training progressing through lower echelon collective training (figure 12).

⁸¹ “Training to Be the Bosses’ Boss,” *Army: Magazine of the Association of the United States Army*, December 2000, 65.

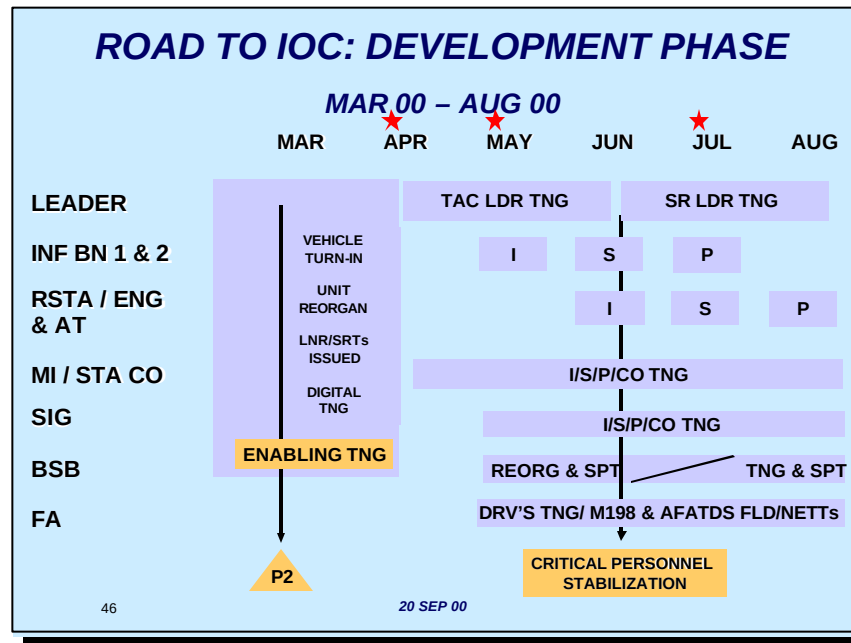


figure 12 - Phase Ia (Developmental Training) March-August 2000⁸²

Enabling training began immediately with Mobile Training Teams (MTTs) from TRADOC schools providing instruction in selected special skills: sniper, mortar, Close Quarters Marksmanship (CQM)/MOUT, FCB2, and ABCS. Five iterations of a seven-day Tactical Leaders' Course (TLC) for all company and battalion leadership ran from April through June 2000. Three days of common course training on organization, leadership, and the SSC environment preceded two days of proponent "fighting" training. Three iterations of the TLC occurred at Fort Lewis while one iteration each occurred at Fort Huachuca and Fort Gordon, for the military intelligence and signal companies respectively. The Senior Leaders' Course (SLC) began shortly after the TLC, 15 June through 1 August 2000. This course was a single iteration of training for battalion and brigade commanders, select specialty company commanders, select staff, and senior NCOs from across the IBCT. It was a relatively comprehensive overview of the IBCT Organizational and Operational Concept taught at six installations: Fort Lewis, Fort Lee,

Fort Huachuca, Fort Knox, Fort Benning, and Fort Leavenworth.⁸³ Two infantry battalions, the RSTA squadron, and the engineer and AT companies conducted incremental training from individual through squad and platoon collective training. The military intelligence and signal companies conducted similar, echeloned training at Fort Huachuca and Fort Gordon. The brigade support battalion conducted support operations. The field artillery battalion conducted extensive individual driver's training and M198 and Advanced Field Artillery Tactical Data System (AFATDS) NETT training.⁸⁴

Training from September 2000 through February 2001 is the transition into more sophisticated, multi-echelon collective training at increasingly higher levels. (figure 13).

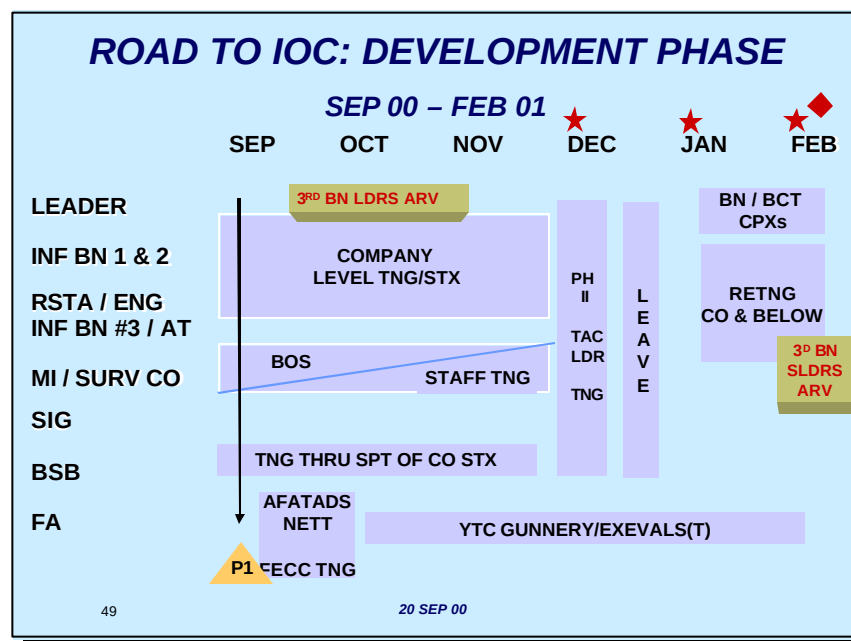


figure 13 - Phase Ia (Developmental Training) September 2000 - February 2001⁸⁵

⁸² "The Road to IOC" 20 SEP 00, slide 46.

⁸³ "The Road to IOC" version 2 for RRC/TLC Overview, slide 7.

⁸⁴ "The Road to IOC" 20 SEP 00, slide 46.

⁸⁵ "The Road to IOC" 20 SEP 00, slide 49.

Two infantry battalions, the RSTA squadron, and the engineer and AT companies conduct company level training and STXs from September through November. The military intelligence and signal companies conduct BOS specific and staff integration training. The BSB will continue to nest its training with the maneuver units during the company STXs. The field artillery battalion continues its AFATDS NETT training and Fires and Effects Coordination Cell (FECC) training. In October, the artillery battalion deploys to Yakima Training Center to conduct gunnery and EXEVALs.⁸⁶ Upon completion of multi-echelon training, the IBCT will execute phase 2 of the Tactical Leaders' Course. Phase 2 is a round robin, hands-on program that includes leader unique stations tailored to the particular capabilities of the IBCT.⁸⁷ After a period of block leave, the IBCT will complete the developmental phase of training in January and February 2001 with battalion and brigade level Command Post Exercises (CPXs) and retraining on company level collective tasks from the STXs.⁸⁸

Phase Ia - Developmental Training : Technology Integration

The majority of technological integration during the developmental training phase is associated with the extensive enabling training for ABCS and FBCB2. In the vernacular of digital information systems, two words are critical to understanding enabling and sustainment training: "white box" and "green box". "White box" training refers to classroom training conducted on systems that are not hardened to the environment or imbedded in a combat platform. "Green boxes" are the ruggedized "go-to-war" systems that are installed on the combat platforms. I Corps and Fort Lewis set aside two classrooms to conduct ABCS "white

⁸⁶ "The Road to IOC" 20 SEP 00, slide 49.

⁸⁷ "The Road to IOC" version 2 for RRC/SLC Overview, slide 12.

⁸⁸ "The Road to IOC" 20 SEP 00, slide 49.

box” training for 165 leaders and operators. Distance learning techniques as well as simulations packages provided the technical underpinning for ABCS instruction.⁸⁹

Initial ABCS BOS training occurred 16-28 October 2000 to facilitate BOS and staff integration training 30 October to 17 November 2000. This training familiarized users with the capabilities of the various digital systems and initiated the process of conducting staff functions as part of networked situational awareness architecture. From 27 November to 1 December 2000, BOS representatives and staff conducted sustainment training in preparation for first IBCT digital staffex. The staffex occurs 4 through 8 December 2000. “Green box” NET occurs 8 through 12 January 2001 followed by “green box” communications exercises (COMMEX) 29 January through 2 February 2001. The culminating events for systems validation during the developments phase of training are the battalion and brigade CPXs in January and February 2001.⁹⁰

The glide path for FBCB2 integration follows basically the same course as ABCS for enabling and sustainment training. The principle initial difference is the required volume of FBCB2 “white” and “green boxes”. The FBCB2 “white box” training occurs in the same buildings as the ABCS training, only FBCB2 requires six classrooms for 636 trainees. By September 2000, the digital systems classrooms (ABCS and FBCB2) became part of the Mission Support Training Facility (MSTF) for permanent sustainment training.⁹¹

“Green box” integration became a different issue during the later part of the developmental training process. Army wide, there are a limited number of FBCB2 “green

⁸⁹ “The Road to IOC” version 2 for RRC/C4ISR Training (ABCS), slide 4.

⁹⁰ “The Road to IOC” version 2 for RRC/ABCS NET and Sustainment Training, slide 1.

⁹¹ “The Road to IOC” version 2 for RRC/C4ISR Training, slide 2.

boxes” and Enhanced Position Location Reporting System (EPLRS)⁹² systems. Additionally, the IBCT was competing with two other Army organizations currently testing or upgrading to digital systems. III Corps units at Fort Hood, Texas released 268 FBCB2 “green boxes” through the months of September, October, and December as they received *Legacy Force* digital systems upgrades. Joint Contingency Force Advanced Warfighting Experiment (JFC AWE) completed exercises at Fort Polk, Louisiana in time to provide 200 EPLRS systems in November 2000. An additional 200 EPLRS arrived off the production line in the same time frame. These numbers provided the minimum required “green boxes” to facilitate the battalion and brigade CPXs scheduled for the winter of 2000-2001.⁹³

Phase Ia - Developmental Training : Organizational Integration

Unit, personnel, and equipment reorganization became one of the more contentious issues that required immediate resolution during the developmental training phase. The prospect of building a new unit in the face of critical personnel shortages, high OPTEMPO, significant force reduction tension, and budgetary concerns is daunting. Yet, the men and women of the force providers FORSCOM, I Corps, 3/2 IN and the facilitators across the Army Management Team “made it happen”. Successfully breaching this obstacle alone should be a harbinger for ultimate success.

The first order of business for reorganization was the turn-in of *Legacy Force* equipment and the retention of vehicles suitable for the surrogate pool. 3/2 IN conducted a professional and complete vehicle turn-in during the month of March 2000. The surrogate pool, augmented by

⁹² EPLRS – Enhanced Position Location Reporting System. This device is critical for accurate and up-to-date global positioning. It is the station-keeping component within the FBCB2 system.

⁹³ “The Road to IOC” version 2 for RRC/C4ISR Training (FBCB2), slides 1-2.

various loaner platforms provided minimum, yet fully adequate, suitability to keep the transformation process moving until complete IAV fielding during phase Ib. By putting FBCB2 on the vehicles in the surrogate pool, developmental training could progress at the echelons indicated in “The Road to IOC”. Loaners included CENTAURs, LAV IIIs, FOXs, and LYNXs while U.S. surrogates included HMMWVs and M113s (figure 14). These surrogates serve as a more extant example of how to overcome negative inertia in executing parallel and simultaneous change.⁹⁴

SURROGATE POOL REQUIREMENT

MAR00-AUG00

HMMWV

LMTV

LOANERS

ILO/OTHER

TOTAL

RATIONALE

117

18

12
(LAV)

147

-CO SETX3
-HHC SET
-BN C2

50

4

4
(LAV)

58

-HHT SET
-RECCEX2(-)
-BN C2

10

1

11

-AT PLTX2
-CO C2

5

1

6 X SEE
2 X DEUCE

17

-CBT MOB
PLT
-1XMOB
SEC

MI

BSB

36

37

73

-PROVIDE LOG
SUPPORT
-BNC2

TOTALS

218

61

16

11

306

3

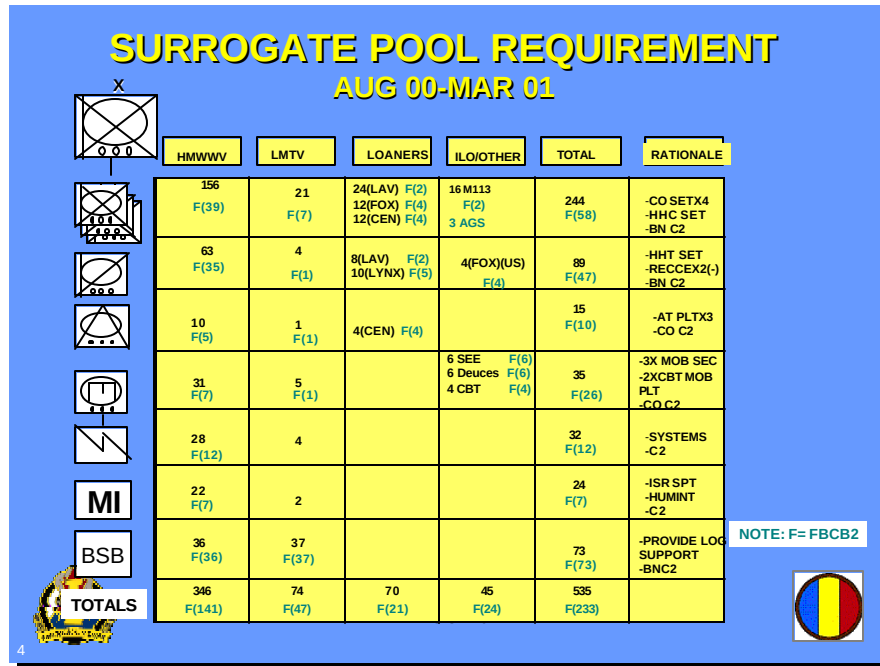


figure 14 – The Surrogate Pool⁹⁵

Conversion of Fort Lewis tenant units required immediate attention as shortfalls in on-hand personnel and equipment drove requirements placed across the Army Management Team and the greater Army. 3/2 IN was organized as a typical tank heavy brigade: 2 armor battalions and one mechanized infantry battalion. Within 3/2 IN, 1st Battalion (M), 23rd Infantry Regiment became the first combined arms infantry battalion and 1st Battalion, 32nd Armor Regiment became the RSTA squadron on 27 March 2000. 5th Battalion (L), 20th Infantry Regiment transferred from 1st Brigade, 25th Infantry Division to become the second combined arms infantry battalion on 28 April 2000. 1st Battalion, 33rd Armor Regiment transferred to 1/25 IN in exchange on the same day. On 27 March 2000, A Company of the 168th Engineers became the IBCT's engineer company. 1/32 AR Battalion and 5/20 IN Battalion provided units to build the IBCT's anti-tank company on 27 March and 1 April 2000, respectively. 1st Battalion, 37th Field

⁹⁵ "The Road to IOC" version 2 for RRC/Equipment Requirements, slides 3-4.

Artillery Regiment became the IBCT's artillery battalion and the 296th Forward Support Battalion became the IBCT's Brigade Support Battalion on 15 August 2000.⁹⁶

The obvious tenant unit shortfalls for the IBCT were one combined arms infantry battalion, a military intelligence company, and a signal company. These units were created at their respective branch installations, provided baseline enabling training, and sent to Fort Lewis as a unit set. The military intelligence company assembled from across the Army and formed at Fort Huachuca. After conducting enabling training and initial developmental training, the company moved to Fort Lewis in August 2000.⁹⁷ The signal company progressed along the same glide path at Fort Gordon, GA and moved to Fort Lewis in September 2000. The infantry battalion assembled in a slightly different manner. Officers and senior NCOs arrived at Fort Lewis and became the cadre of the newly formed 2nd Battalion, 3rd Infantry Regiment in October 2000. The remainder of the battalion is assembled at Fort Benning, GA and is conducting basic entry and advanced infantry training. It moves to Fort Lewis as a cohort in February 2001.⁹⁸

Significant unit reorganization and new unit construction required more than unit reflagging and transfer. Certain MOS (Military Operational Specialty)-specific shortfalls occurred across the IBCT requiring Army staff and Army Personnel Command assistance. Like all other members of the Army Management Team, the DA personnel managers faced compressed timelines for personnel fill: P2 status (80-89 percent MOSs available and 75-84 percent senior grade strength)⁹⁹ by March 2000 and P1 status (90-100 percent MOSs available and 85-100 percent senior grade strength)¹⁰⁰ by September 2000. MOS 19D (scout), MOS 11H (anti-armor infantryman), and MOS 11B (infantryman) were three populations requiring large-

⁹⁶ "The Road to IOC" version 2 for RRC/Personnel Requirements, slides 1-2.

⁹⁷ "The Road to IOC" version 2 for RRC/Personnel Requirements, slide 3.

⁹⁸ "The Road to IOC" 20 SEP 00, slide 49.

scale supplementation. Authorizations for MOS substitution of MOS 11M (mechanized infantryman) for 11B and 11H; and MOS 19K (tanker) for 19D and 11H provided the near-term solution. 19K to 19D reclassification programs commenced at Fort Knox, KY to provide long-term solutions, while similar means achieved long-term solutions for 11Bs and 11Hs at Fort Benning, GA.¹⁰¹ Critical, Army-wide specialty shortages are an on-going challenge. One specific example is the shortage of military intelligence, warrant officer analysts. The significant increase in military intelligence assets in the IBCT exacerbates this situation. DA assisted the transformation process by providing limited wholesale stabilization early on and select, long-term stabilization of key personnel. In order to retain unit proficiency beyond IOC, personnel managers allowed a 10 percent turnover rate.¹⁰²

Phase Ia - Developmental Training : Doctrinal Integration

Conveying the concept for doctrinal change and overcoming resistance to that change was as challenging an endeavor as the equipment changes. The most significant hurdle was overcoming the propensity to develop extensive doctrinal tasks lists (CTTLs) of Cold War vintage. From December 1999 through February 2000, the various branch and specialty proponents from across TRADOC wrestled with the CTTLs until they came up with a viable product. By the end of February, the CTTLs provided a sufficient basis for the development of the required supporting FMs, TMs, and MTPs. Initial draft squad and platoon MTPs and skill manuals arrived through April and May 2000 with company and staff initial drafts arriving in July 2000. Initial draft battalion and brigade manuals arrive through December 2000. The next

⁹⁹ Army Regulation (AR) 220-1, *Field Organizations, Unit Status Reporting* (Washington, DC: Department of the Army, September 1997), table 4-1.

¹⁰⁰ Army Regulation (AR) 220-1, table 4-1.

¹⁰¹ "The Road to IOC" version 2 for RRC/Personnel Requirements, slide 2.

iteration of lower echelon doctrine begins arriving immediately on the heels of the higher echelon initial drafts. Final coordinating draft squad, platoon, and company MTPs and skill manuals begin arriving in January, February, and March 2001.¹⁰³ The BCC and ATEC analysts work in coordination with the IBCT to apply and assess the doctrinal products and to provide feedback in a timely manner. This process continues through each iteration and update during the entire developmental training process.

Phase Ib – New Equipment Fielding

Phase Ib (New Equipment Fielding) is to proceed in conjunction with Phase Ic (Operational Training). The conduct of New Equipment Training (NET) for the IAVs dominates the first seven months of this period (figure 15). Starting on 15 March and ending in September 2000, IAV fielding is incremented across the IBCT based on the point at which each unit initiated developmental training. Those elements participating in the IOTE (Initial Operational Test and Evaluation) receive highest priority. Note each unit requires approximately two months of NET and post-NET training.¹⁰⁴

¹⁰² “The Road to IOC” version 2 for RRC/Personnel Requirements, slide 1.

¹⁰³ “The Road to IOC” version 2 for RRC, slides 18-20, 22-23.

¹⁰⁴ Brigade Coordination Cell, United States Army Training and Doctrine Command, “IBCT Council of Colonels Video Teleconference,” Fort Lewis, WA, 29 November 2000, slide 10.

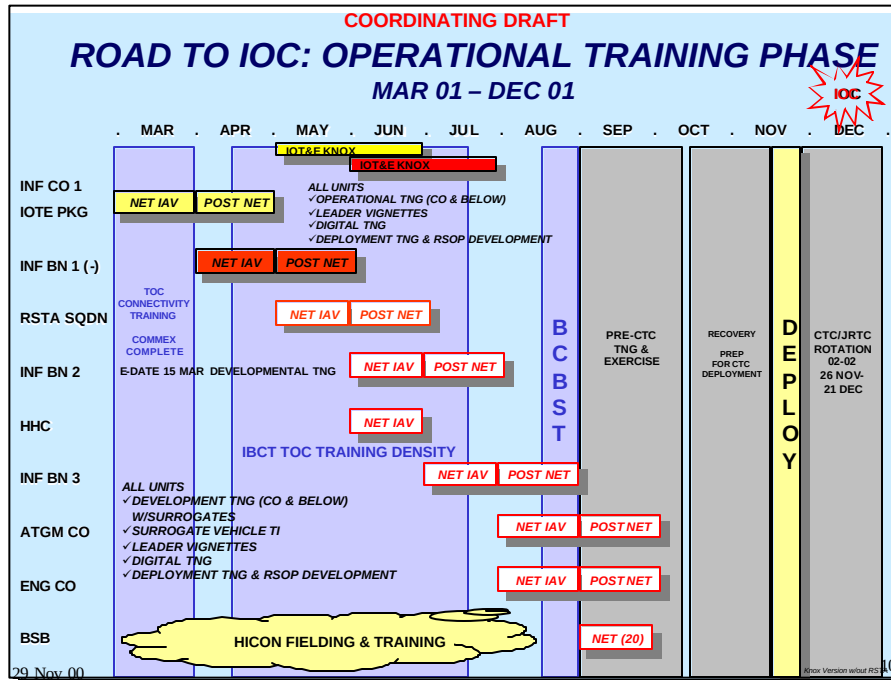


Figure 15 – New Equipment Fielding Embedded in the Operation Training Phase¹⁰⁵

Phase Ic – Operational Training

The primary task associated with Phase Ic (Operation Training) is to execute a Combat Training Center rotation, using this venue as a unit deployment and fightability certification exercise.”¹⁰⁶ While individual units sets of IAVs arrive at Fort Lewis and their associated personnel conduct NET training, developmental retraining will continue at the company level and below. Additionally, every echelon will conduct deployment training and develop Readiness Standard Operating Procedures (RSOP). As NET comes to its conclusion, higher echelon collective training and exercises will focus on unit deployability, equipment sustainability, and overall unit readiness. In August 2001, the brigade will conduct a Brigade Command and Battle Staff Training Program (BCBST). From the end of August through mid October 2001, the IBCT will conduct pre-CTC training to include a deployment exercise. A period of recovery and

¹⁰⁵ “Council of Colonels VTC,” slide 10.

deployment preparation will follow as the IBCT readies for its validation at the CTC. The most likely CTC for the validation exercise is the Joint Readiness Training Center at Fort Polk, LA. The IBCT will execute a strategic and operational deployment as part of a high-end, SSC mission.¹⁰⁷

The operational phase of the *Transformation Campaign Plan* represents the final integration of technology, organization, and doctrine. Battalion and brigade level exercises will provide the vehicle to ensure that adequate training and parallel integration of the essential elements of change have occurred during enabling training and the developmental training phase. Individual and small unit collective training competency should be high as final unit organizational issues are resolved and technological insertion is refined. Doctrinal issues relative to the network will probably remain “in the rough” as the IBCT will still be sorting out the overall capabilities of integrated systems.

The “road to IOC” contains six months of individual digital training including 40 hours of ABCS operator training, 40 hours of ABCS Master Training, 40 hours of FBCB2 operator training, and 40 hours of FBCB2 master training.¹⁰⁸ This intensive immersion in digital technology will provide the impetus for the unique behavioral attributes of the IBCT. With the establishment of the MSTF, continued sustainment training is readily available throughout the operational training phase. The challenge for the respective IBCT units will be to develop TTPs and SOPs that maximize digital capabilities.

A significant organizational challenge remains for the IBCT as the third combined arms infantry battalion settles in during the operational training phase. Adequate “catch-up” training is planned during NET to ensure that the newest members of the IBCT are proficient at the

¹⁰⁶ “Initial Brigade Combat Team Charter,” 4.

¹⁰⁷ “The Road to IOC” 20 SEP 00, slide 51.

developmental training tasks.¹⁰⁹ It is important to note that the battalion's leadership has been present since the earliest stages of developmental training. As a result, the battalion will have the benefit of their expertise gained during the various leadership training programs. Moreover, the battalion leadership will have participated in various roles (observers, observer/controllers, data collectors) during the other battalions' training events. The cohort of infantrymen training at Fort Benning will also know well ahead of time that they are going to a unique organization. As a result, certain aspects of the Organizational and Operational Concept will be integrated into their training prior to arrival at Fort Lewis.

Doctrinal integration will also progress in an iterative manner and address increasingly higher echelons. Final coordinating draft manuals will arrive for battalion and brigade level doctrine in June 2001.¹¹⁰ Of the three elements of change, doctrine will probably be the greatest leap ahead and the least refined. The refinement of SASO and SSC tasks, conditions, and standards, along with associated doctrinal discussion will progress rapidly. The application of network-centric, internetted combined arms doctrine will take a significantly greater amount of time than that allotted in "The Road to IOC". This continued refinement will result in the most useful and pertinent contribution to the *Objective Force* given that the organization and technology for the *Objective Force* have yet to be identified.

Phase Id – The Development and Fielding of Subsequent Forces

¹⁰⁸ "Council of Colonels VTC," slide 7.

¹⁰⁹ "The Road to IOC" 20 SEP 00, slide 50.

¹¹⁰ "The Road to IOC" version 2 for RRC, slide 25.

“Concurrent with the development of the IBCTs, work will begin on the second and subsequent generation forces.”¹¹¹ TRADOC provides proponentcy for future force concept development and exploration across the DTLOMS. The BCC will remain active as the proponent for taking concept to reality with the second IBCT. The “Road to IOC” for the second IBCT is developed concurrently with the execution of the first IBCT’s. 1st Brigade of the 25th Infantry Division is designated as the force provider for the next IBCT. Enabling and developmental training will begin in parallel with the first IBCT as 3/2 IN approaches IOC. Lessons learned on reorganization and training will ensure a smoother, more efficient process. Results from the IOTE and hands-on experience from the IBCT’s soldiers will be invaluable. Additionally, members of the second IBCT will be able to observe 3/2 IN’s progress as 1/25 IN is also a tenant of Fort Lewis. While Phase Id conceptually represents the fact that the IBCT is a first of many steps in the *Army’s Transformation Plan*, it is also a practical rehearsal for those organizations that follow.

Analysis of Phase I – Building the IBCT

The “Road to IOC” effectively leverages the advantages of parallel evolution. It is structured in such a way as to allow changes in technology, organization, and doctrine to proceed in a controlled, yet rapid manner. Additionally, all training events are iterative and well resourced with feedback mechanisms (controllers and data collectors). This orchestration of *transformation* at the tactical level keeps the process of change moving rapidly without compromising quality. Yet, the “Road to IOC” is vulnerable to influences outside the immediate control of the Army.

¹¹¹ “Initial Brigade Combat Team Charter,” 4-5.

While the Army's leadership can inspire and even demand a sense of urgency from within the organization, it has limited ability to equally influence the private industry that produces the weapons and equipment that comprise the technological innovation in the IBCT. This aspect of *transformation* highlights a critical vulnerability in the process. The acquisition and NET process are imbedded into approximately one-third (seven months) of the "Road to IOC" timeline. This seven-month planning factor is based on two assumptions: (1) NET and post-NET require two months per crew and (2) industry can produce IAV's at the required rate, commencing at the required date. In this case, five months after the first IAV delivery, the last IAV must arrive at Fort Lewis. Specifically, IAV number one arrives in March 2001 and the last IAV arrives in July 2001 with NET complete by the end of September 2001. Even though the basic design for the IAV is the LAV III (a system already in the production line) 2131 vehicles may be an overwhelming volume for the production facility. Failure to comply with production quotas could have irreversible consequences for IOC in December 2001.

Since IOC in December 2001 is not associated with a tactical or immediate strategic requirement, failure to meet the desired date should not have national security ramifications. Additionally, civilian industry would be responsible for the shortfall, not the military. This delineation is a critical point because it is imperative that the Army demonstrates that it has the will and determination to change. It must be the lead dog in the shed team, pulling the rest of the bureaucracy through the red tape and friction. In a more extreme case where IOC is delayed significantly, the IBCT's fielding could have a negative impact on the overall path to the *Objective Force*. Another potential negative impact would be a loss of faith in Congress. Therefore, it is essential that transformation proponents keep a solid liaison with the money handlers in the legislative branch.

Cultural adjustments will generate another point of friction in *transformation*. Virtually every aspect of the Army's institutional infrastructure and large portions of operational infrastructure will feel the impact. Certain niches and functions, however, will feel more of an impact than others. Perhaps the largest organizational change is occurring in transforming tank battalions into RSTA squadrons. On the surface, this change may not seem dramatic since Fort Knox and the armor corps are the proponents for cavalry operations. Yet, cavalry missions are less reconnaissance oriented and more guard, screen, and cover mission oriented. These missions are characterized by bold, overt, combined arms maneuver in M1 main battle tanks, M3 cavalry fighting vehicles, etc. The RSTA mission will require a significantly more subtle touch with reconnaissance and surveillance conducted through stealthy observation, interaction, and remote imaging. Additionally, the incorporation of significant military intelligence assets as organic elements of the RSTA squadron will provide a vital aspect of the squadron's ISR capabilities. Yet, the key leaders in the squadron (Commander, executive officer, and operations officer) will remain products of Fort Knox and a long history of cavalry influence. The implication is that institutional and organizational training must remain vigilant to proper utilization of the invaluable capabilities of the Military Intelligence company, squad-level CI personnel, and the UAV detachment.

Initial doctrinal products from the institutional Army (proponent schools) indicate a mixed, but promising, start toward concept renovation based on the IBCT's unique qualities. Specifically, doctrinal publications do a sufficient job addressing needed SASO and SSC requirements, yet a significant shortcoming in the omission of the doctrinal aspects of internettted combined arms. The success in incorporating SASO and SSC considerations is due to the extensive experience base generated from operations in the Balkans, the Caribbean, Central

America, Asia, and Africa. Conversely, the failure to address the digital network is the direct result of a limited experience base. The expectation is that the IBCT will play a crucial role in shaping this aspect of emerging doctrine.

A critical aspect of emerging doctrine relative to network-centric warfare will be clarification of command roles and influence at each echelon of leadership. With real time situational awareness, commanders will have a significantly increased ability to micromanage their subordinate units. The decentralized battlefield is not place for micromanagement. Technically, the IBCT Commander could track and control individual systems and vehicles in his unit. Such a temptation could be disastrous. As technology facilitates the expansion of the brigade's battle space, leaders must foster initiative and confidence in the subordinates. Failure to resist the temptation to "reach" down to the lowest level will have a profoundly negative impact on morale and an erosive effect on long-term leader development. In effect, it would nullify the technical advantage of the situational awareness equipment. Senior leaders must understand their roles at their relative echelon and allow the appropriate level of leadership to exercise command and control.

Conclusion

Since 1991, the Army's senior leaders, the Chiefs of Staff, have taken personal responsibility for orchestrating the Army's transformation. They have considered the Army's future their most important legacy. These men are also historians in their own right and they understand history's lessons in unpreparedness. The argument that America's Army is "good enough" flies in the face of everything history teaches; yet, institutional resistance to change continues to play its classic role of complacency's vassal. The argument follows that America's

Army is the mightiest land force in history; therefore, it is all the more likely that the inattentive will slumber in its warm blanket. Times such as these demand the most acute vigilance.

GEN Shinseki recently stated, “Army transformation represents the strategic transition we will have to undergo to shed our Cold War design. ...It is also a test of our institutional agility and our heart as an Army.”¹¹² The fundamental challenge in accepting the *Army’s Transformation Strategy* is understanding the need for *transformation*. Clearly, today’s operational environment and National Security Strategy demand a force more strategically responsive than the one currently fielded. Given today’s technology, increased strategic responsiveness exacts a toll in lethality and survivability. Without such a compromise, the Army’s relevance is at stake. Therefore, the question is not whether or not the Army should change, but how.

The *Transformation Campaign Plan* is the best solution for implementing change to meet America’s short-term requirements while simultaneously providing a vehicle for change in the operational and institutional Army. Short-term needs for a low-end, SSC and SASO force are on going across the globe, while the high-end MTW threat lurks in the wings. *Transformation* combines the best available technology with a training protocol that cultivates toughness, competency, and initiative at every echelon of the organization. The commensurate lethality provides an ideal combat formation that fills the capabilities gap currently existing between the *heavy and light forces* of the *Legacy Force*. By balancing overall force structure between the *Legacy Force* and the *Interim Force*, the Army most effectively meets the demand of today’s National Security Strategy.

Transformation also provides the vehicle for building the Objective Force. By inserting the latest generation of “off the shelf” equipment into the process of changing doctrine and

organization, the Army is best able to create an integrated product. This philosophy guides the methodology employed at Fort Lewis, WA in an effort to conduct thoroughly integrated change.

The first Initial Brigade Combat Team, 3/2 IN, is the unit that is the focal point for turning a decade of concept development into reality. The multi-echelon developmental and operational training process will attain substantial results in a highly compressed timeline, demonstrating the Army's ability to change from within. The training and reorganization required to attain Initial Operational Capability will become a basic template applied across multiple brigades, each building on the others' achievements. Ultimately, *Science and Technology* will provide the solution for merging the *Legacy Force* and *Interim Force* into the *Objective Force*. The modernization of organizational and doctrinal concepts achieved in the IBCTs will provide the foundation of operational and institutional experience required to maximize the capabilities of the *Science and Technology* solution.

¹¹² "Get on Board," 1.

Bibliography

- “Army gets improved light-armored vehicles.” *Marine Corps Times* vol. 2, no. 47 (4 December 2000): 23.
- Army Regulation (AR) 220-1. *Field Organizations, Unit Status Reporting*. Washington, DC: Department of the Army. September 1997.
- Brigade Coordination Cell, United States Army Training and Doctrine Command. “IBCT Council of Colonels Video Teleconference.” Fort Lewis, WA, 29 November 2000.
- Brigade Coordination Cell, United States Army Training and Doctrine Command. “The Initial Brigade Combat Team (IBCT).” URL: <150.192.109.31:621/roadshow brf 8 jul.ppt>. Accessed 22 November 2000.
- Brigade Coordination Cell, United States Army Training and Doctrine Command. “The Initial Brigade Combat Team (IBCT): The Road to Initial Operational Capability (IOC),” RRC version 2. Fort Lewis, WA: March 2000.
- Brigade Coordination Cell, United States Army Training and Doctrine Command. “The Initial Brigade Combat Team (IBCT): The Road to Initial Operational Capability (IOC),” version 20 September 2000. URL: <ftp.150.192.1109.31:621/00925 rtioc.ppt>. Accessed 22 November 2000.
- Caldera, Louis and Eric K. Shinseki. *A Statement on the Posture of the United States Army, Fiscal Year 2001*. Headquarters, Department of the Army: Office of the Chief of Staff of the Army, Congressional Activities Division (DACs-CAD), February 2000.
- Citino, Robert M. The Path to Blitzkrieg: Doctrine and Training in the German Army, 1920-1939. Boulder, CO: Lynne Rienner Publishers, Inc., 1999.
- Doughty, Robert A. “The Evolution of U.S. Army Tactical Doctrine, 1946-76.” *Leavenworth Papers*, no. 1 (August 1979): 1-50.
- Eckert, Gregory (COL, USA) and James Phillips (MAJ, USA). “Digital Training: The Way Ahead.” *Army: Magazine of the Association of the United States Army* 50, no. 8 (August 2000): 29-30, 32.
- Gourley, Scott R. “Future Combat Systems.” *Army: Magazine of the Association of the United States Army* 50, no. 7 (July 2000): 23-24, 26.

- Green, Charles J. (COL, USA), and James D. Edwards (MAJ, USA). "III Corps Expands the Knowledge Base for Employing Sensors." *Army: Magazine of the Association of the United States Army* 50, no. 8 (August 2000): 25-26, 28.
- Griffin, Benjamin S. (MG, USA), and Archie Davis (LTC, USA). "Operation-Centric Warfare: Setting the Conditiond for Success at Brigade and Battalion." *Army: Magazine of the Association of the United States Army* 50, no. 8 (August 2000): 21-22, 24.
- Herbert, Paul H. "Deciding What Has to Be Done: General William E. DePuy and the 1976 Edition of FM 100-5, Operations." *Leavenworth Papers*, no. 16 (1988):3-107.
- Johnson, David E. Fast Tanks and Heavy Bombers: Innovation in the U.S. Army 1917-1945. Ithaca, NY: Cornell University Press, 1998.
- Kahn, E.J. Jr. McNair: Educator of an Army. Washington, D.C.: Infantry Journal, Inc., 1945.
- Kern, Paul J. (LTG, USA). "The Future Battlefield." *Army: Magazine of the Association of the United States Army* 50, no. 7 (July 2000): 19-22.
- LaPorte, Leon J. (LTG, USA), and Winn Noyes (COL, USA). "Operation-Centric Warfare: The Bold Shift." *Army: Magazine of the Association of the United States Army* 50, no. 8 (August 2000): 16-20.
- Lupfer, Timophy T. "The Dynamics of Doctrine: The Change in German Tactical Doctrine During the First World War." *Leavenworth Papers*, no. 4 (July 1981): 1-58.
- Maggart, Lon E. (MG, USA-Ret.). "Battlefield Dominance Through Smart Technology." *Army: Magazine of the Association of the United States Army* 50, no. 7 (July 2000): 43-46.
- Messenger, Charles. The Blitzkrieg Story. New York: Charles Scribner's Sons, 1976.
- Murray, Williamson, and Allan R. Millet. Military Innovation in the Interwar Period. Cambridge, UK: Cambridge University Press, 1996.
- Nelsen, John T. II. George C. Marshall: Strategic Leadership and the Challenges of Reconstructing the Army, 1939-41. Carlisle Barracks, PA: Strategic Studies Institute, U.S. Army War College, 1993

Office of the Chief of Staff of the Army. "Army Transformation Panel Institute for Land Warfare." URL: <[http://www.army.mil/usa/AUSA Web/PDF Files/Master Desk.pdf](http://www.army.mil/usa/AUSA%20Web/PDF%20Files/Master%20Desk.pdf)>. Accessed 13 November 2000.

Office of the Chief of Staff of the Army. "The Army Vision: Soldiers On Point for the Nation ... Persuasive in Peace, Invincible in War." URL: <[http://www.tradoc.army.mil/transformation/Data Pages/csa_vision.htm](http://www.tradoc.army.mil/transformation/Data%20Pages/csa_vision.htm)>. Accessed 13 November 2000.

Office of the Chief of Staff of the Army (DACS-ZA). "Transformation Planning Directive #1." URL: <[http://www.tradoc.army.mil/transformation/Data Pages/Planning Directive 1.htm](http://www.tradoc.army.mil/transformation/Data%20Pages/Planning%20Directive%201.htm)>. Accessed 13 November 2000.

Office of the Chief of Staff of the Army (DACS-ZA). "Transformation Planning Directive #2." URL: <[http://www.tradoc.army.mil/transformation/Data Pages/Planning Directive #2.htm](http://www.tradoc.army.mil/transformation/Data%20Pages/Planning%20Directive%202.htm)>. Accessed 13 November 2000.

Shinseki, Eric K. "The Army Transformation: A Historic Opportunity." *Army: Magazine of the Association of the United States Army*: 2000-01 Green Book 50, no. 10 (October 2000): 21-24, 26, 28, 30.

"Shinseki: Get on Board ... or, Get Out of the Way." *Association of the United States Army News*, December 2000, 1.

Stroup, Theodore G. (LTG, USA-Ret.). "The Ongoing Army Transformation." *Army: Magazine of the Association of the United States Army* 50, no. 7 (July 2000): 7-8, 10.

Tank-Automotive and Armaments Command. "Commander's Vehicle (BDE CDR) Architecture." URL: <<http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/Commsysarch/tab-a/tab-a8/Tab-A-8-CV-BDE-CDR-SA.ppt>>. Accessed 4 December 2000.

Tank-Automotive and Armaments Command. "Commander's Vehicle (BN CDR) Architecture." URL: <<http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/Commsysarch/tab-a/tab-a10/Tab-A-10-CV-INF-BN-CDR-SA.ppt>>. Accessed 4 December 2000.

Tank-Automotive and Armaments Command. "IBCT System Architecture Equipment

List by Variant.” URL: <<http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/Commsysarch/tab-b/IBCT-SA-Equip-by-var/Sys-Arch-Equip.xls>>. Accessed 4 December 2000.

Tank-Automotive and Armaments Command. “Interim Armored Vehicle (IAV) Inventory for I-BCT.” URL: <[http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/Commsysarch/tab-a/tab-c-1/IAV_2_3\(2\).XLS](http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/Commsysarch/tab-a/tab-c-1/IAV_2_3(2).XLS)>. Accessed 4 December 2000.

Tank-Automotive and Armaments Command. “Operational Requirements Document for a Family of Interim Armored Vehicles (IAV) ACAT I, Prepared for Milestone I Decision.” URL: <<http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/iavord.htm>>. Accessed 13 November 2000.

Tank-Automotive and Armaments Command. “Reconnaissance Vehicle (PL LDR) Architecture.” URL: <<http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/Commsysarch/tab-a/tab-a5/Tab-A-5-RV-SA.ppt>>. Accessed 4 December 2000.

“Training to Be the Bosses’ Boss.” *Army: Magazine of the Association of the United States Army* 50, no. 12 (December 2000): 65-67.

United States Army Training and Doctrine Command. “Army Transformation Overview, Operational Concept and Brigade Design.” URL: <<http://www.tradoc.army.mil/transformation/Document Native Format/Trans overview 081300 mar 00.ppt>>. Accessed 13 November 2000.

United States Army Training and Doctrine Command. “Chapter 2 Assessment of Operational Environment.” URL: <[http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chap 2 18 APR with Apend ABCD\(2\).doc](http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chap 2 18 APR with Apend ABCD(2).doc)>. Accessed 8 November 2000.

United States Army Training and Doctrine Command. “Chapter 4, Battle Command, C4ISR and Capabilities.” URL: <<http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chapter 4 IBCT O&O Draft 18April00.doc>>. Accessed 8 November 2000.

United States Army Training and Doctrine Command. “Chapter 4, Section 1, Interim Brigade Combat Team (IBCT) Headquarters and Headquarters Company (HHC).” URL: <<http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chapter 4.1 IBCT O&O Draft 18April00.doc>>. Accessed 8 November 2000.

United States Army Training and Doctrine Command. "Chapter 4, Section 2, Military Intelligence." URL: <[http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chapter 4.2 IBCT O&O Draft 18April00.doc](http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT%20and%20O/Chapter%204.2%20IBCT%20O&O%20Draft%2018April00.doc)>. Accessed 8 November 2000.

United States Army Training and Doctrine Command. "Chapter 4, Section 3, Brigade Signal Company." URL: <[http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chapter 4.3 IBCT O&O Draft 18April00.doc](http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT%20and%20O/Chapter%204.3%20IBCT%20O&O%20Draft%2018April00.doc)>. Accessed 8 November 2000.

United States Army Training and Doctrine Command. "Chapter 5, The Infantry Battalion." URL: <[http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chapter 5 Infantry Battalion O&O 18April00 Draft.doc](http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT%20and%20O/Chapter%205%20Infantry%20Battalion%20O&O%2018April00%20Draft.doc)>. Accessed 8 November 2000.

United States Army Training and Doctrine Command. "Chapter 6, Anti-Tank (AT) Company." URL: <[http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chapter 6 IBCT O&O Draft 18April00.doc](http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT%20and%20O/Chapter%206%20IBCT%20O&O%20Draft%2018April00.doc)>. Accessed 8 November 2000.

United States Army Training and Doctrine Command. "Chapter 8, Fires and Effects." URL: <[http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chapter 8 IBCT O&O Draft 18April00.doc](http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT%20and%20O/Chapter%208%20IBCT%20O&O%20Draft%2018April00.doc)>. Accessed 8 November 2000.

United States Army Training and Doctrine Command. "Chapter 9, Maneuver Support, Section 1, Engineer Company." URL: <[http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chapter 9 IBCT O&O Draft 18April00.doc](http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT%20and%20O/Chapter%209%20IBCT%20O&O%20Draft%2018April00.doc)>. Accessed 8 November 2000.

United States Army Training and Doctrine Command. "Initial Brigade Combat Team (IBCT) Charter (Terms of Reference for Brigade Transformation Task Force)." URL: <[http://www.tradoc.army.mil/transformation/Data Pages/Charter.htm](http://www.tradoc.army.mil/transformation/Data%20Pages/Charter.htm)>. Accessed 13 November 2000.

United States Army Training and Doctrine Command. "Initial Brigade Combat Team: Personnel and Equipment." URL: <[http://contracting.tacom.army.mil/majorsys/Draft_2/14b Attachment 2/22 FEB BCT ORG CHARTS.ppt](http://contracting.tacom.army.mil/majorsys/Draft_2/14b%20Attachment%202/22%20FEB%20BCT%20ORG%20CHARTS.ppt)>. Accessed 8 November 2000.

United States Army Training and Doctrine Command. "Initial Brigade FAD Synchronization Calendar." URL: <<http://www.tradoc.army.mil/transformation/> Document Native Format/IBCT FAD Calendar 2Jun00.ppt>. Accessed 8 November 2000.

United States Army Training and Doctrine Command. "Mission Need Statement for Rapidly Deployable Armored Combat Forces Potential ACAT 1." URL: <[http://www.tradoc.army.mil/transformation.../IAV Mission Needs Statement.htm](http://www.tradoc.army.mil/transformation.../IAV%20Mission%20Needs%20Statement.htm)>. Accessed 13 November 2000.

United States Army Training and Doctrine Command. "The Interim Brigade Combat Team Organizational and Operational Concept." URL: <[http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT O and O/Chapter 3 IBCT OO 18 April 00.doc](http://contracting.tacom.army.mil/majorsys/brigade/formalrfp/BCT%20O%20and%20O/Chapter%203%20IBCT%20OO%2018%20April%2000.doc)>. Accessed 8 November 2000.

Van Creveld, Martin. The Transformation of War. New York: The Free Press, 1991.

Yarrison, James L. The Modern Louisiana Maneuvers. Center for Military History, US Army.