Redefining Operational Maneuver with the Future Combat System (FCS)

A Monograph

by

Major Michael J. Rosamond

United States Army

School of Advanced Military Studies

United States Army Command and General Staff College

Fort Leavenworth, Kansas

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Major Michael Jerome Rosamond

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Approved by:

_____
Rolf Wagner, LTC, German Army
Monograph Director

_____
Kevin C.M. Benson, COL, AR
Director,
School of Advanced
Military Studies

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

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14. ABSTRACT

As the military continues transformation and focuses on capabilities-based organizations to meet guidance provided in the National Security Strategy and The Quadrennial Defense Review, the Army is in position to redefine operational maneuver. Currently, the Army does not conduct operational maneuver with mechanized forces using inter- or intra-theater lift because of the limitations of the current force. The weight of our heavy forces limits the ability to attack the enemy throughout the operational depth of the battlespace with ground maneuver forces. As the Army transitions to a Future Combat System (FCS) equipped force, the possibilities for operational maneuver by armored forces can grow exponentially. A lighter force possessing the same lethality of the Army's current heavy force can provide numerous options to support operational maneuver. The purpose of this monograph is to prove the Army can redefine operational maneuver with the FCS and support of the Joint Force. As we look forward on the ability of the FCS to redefine operational maneuver there are examples throughout history which display how major changes in warfare where developed through new and innovative applications of the technology available. The primacy of maneuver over firepower was established at the beginning of World War II. In order for the FCS to redefine operational maneuver the Army must be successful in the Joint Fight. Failure to dominate in this area will prevent the setting of the conditions that allow the FCS a tactical system to have operational and strategic success. The author proposes the formation of a new force known as the Air Ground Expeditionary Force (AGEF) which will provide Combatant Commanders with an air and ground capability for operations in their respective area of operations. This force will establish habitual relationships between AEF's and UA's identified as early deploying units. The AEF provides a strike capability but in order to take full advantage of the rapid deployability of the FCS equipped UA inter-theater assets are required. The failure to form this new force does not prevent the redefining of operational maneuver through execution using intra and inter-theater lift to move a FCS equipped Unit of Action although such a force will provide Combatant Commanders a Joint Force capable of both ground and air operations.

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ABSTRACT

Redefining Operational Maneuver with the Future Combat System (FCS) by Major Michael J. Rosamond, United States Army, 51 pages.

As the military continues transformation and focuses on capabilities-based organizations to meet guidance provided in the National Security Strategy and The Quadrennial Defense Review, the Army is in position to redefine operational maneuver. *Army Field Manual 3-0* defines operational maneuver as "placing Army forces and resources at the critical place in time to achieve an operational advantage. It is complex, and often requires joint or multinational support. Deployments and intra-theater movements are operational maneuver if they achieve a positional advantage and influence the outcome of a campaign or battle." Currently, the Army does not conduct operational maneuver with mechanized forces using inter- or intra-theater lift because of the limitations of the current force. The weight of our heavy forces limits the ability to attack the enemy throughout the operational depth of the battlespace with ground maneuver forces. The weight prevents movement of large forces using intra-theater airlift, additionally the Army's weight limits the options available to policymakers and requires a build-up of equipment and resources. As the Army transitions to a Future Combat System (FCS) equipped force, the possibilities for operational maneuver by armored forces can grow exponentially. A lighter force possessing the same lethality of the Army's current heavy force can provide numerous options to support operational maneuver using intra-theater lift as well as providing strategic deployment from the United States to contingency areas. The purpose of this monograph is to prove the Army can redefine operational maneuver with the FCS and support of the Joint Force.

As we look forward on the ability of the FCS to redefine operational maneuver there are examples throughout history which display how major changes in warfare where developed through new and innovative applications of the technology available. The primacy of maneuver over firepower was established at the beginning of World War II, when the Allies who outnumbered the Germans in many key areas prior to the invasion of France were defeated through aggressive maneuver by the Germans. In order for the FCS to redefine operational maneuver the Army must be successful in the Joint Fight. Failure to dominate in this area will prevent the setting of the conditions that allow the FCS a tactical system to have operational and strategic success.

The author proposes the formation of a new force known as the Air Ground Expeditionary Force (AGEF) which will provide Combatant Commanders with an air and ground capability for operations in their respective area of operations. This force will establish habitual relationships between AEF's and UA's identified as early deploying units. The AEF provides a strike capability but in order to take full advantage of the rapid deployability of the FCS equipped UA inter-theater assets are required. The expansion of the AEF to possess its own assigned inter-theater lift apart from TRANSCOM will provide it with the capability to deploy FCS units while not adversely affecting air operations in other areas of operations that require inter-theater lift. This new force will provide combatant commanders with a unique capability not currently offered in that they will receive a self-contained force capable of both air and ground operations using lethal mechanized forces centered on the FCS. The failure to form this new force does not prevent the redefining of operational maneuver through execution using intra and inter-theater lift to move a FCS equipped Unit of Action although such a force will provide Combatant Commanders a Joint Force capable of both ground and air operations.

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CHAPTER ONE

INTRODUCTION

Warfare is continuously evolving based on equipment, technology, and perceived threats to the nation. In the past threats were instrumental in determining the equipment and technology needed to defeat them in the event of war. The continuing changing strategic and operational environment makes identification of threats to the nation more challenging than anytime in the past. As a result, the military is moving away from a threat-based model, which has dominated military development for hundreds of years, to a capability-based model. The threat based model focused on enemy weapon systems and doctrine and the systems we needed to defeat them.[1] During the Cold War, the United States identified Soviet armor formations and echelon employment in conjunction with their nuclear capability as the major threat. Although the nuclear threat was an important one the Army focused on defeating the conventional threat through the identification of new weapons systems. The Army identified the big five (Abrams tank, Paladin howitzer, Multiple Launch Rocket System, Bradley fighting vehicle, Apache attack helicopter) as the means needed to defeat the Soviets if a conventional war on the continent of Europe erupted or a regional conflict with an adversary supported by the Soviet Union.

This new capability model will focus on how conventionally equipped enemies may fight rather than who the enemy is. As the military moves to a capabilities-based model, the goal is to field a force that can operate through the entire spectrum of military operations. It is much harder today to determine the enemy and field a force to defeat him because the enemy can range from a nation state to a non-state actor. The military must be prepared to deal with whichever threat arises to the interests of the United States. The Quadrennial Defense Review 2001 identifies four key goals to guide the development of US Forces and capabilities, their deployment and use:

[1] Quadrennial Defense Review 2001. Washington, D.C., 2001, p.IV

a. Assuring allies and friends of the United States' steadiness of purpose and its capabilities to fulfill its security commitments;

b. Dissuading adversaries from undertaking programs or operations that could threaten US interests or those of our allies and friends;

c. Deterring aggression and coercion by deploying forward the capacity to swiftly defeat attacks and impose severe penalties for aggression on an adversary's military capability and supporting infrastructure; and

d. Decisively defeating any adversary if deterrence fails.[2]

As the military continues transformation and focuses on capabilities-based organizations to meet guidance provided in the National Security Strategy and The Quadrennial Defense Review, the Army is in position to redefine operational maneuver. *Army Field Manual 3-0* defines operational maneuver as "placing Army forces and resources at the critical place in time to achieve an operational advantage. It is complex, and often requires joint or multinational support. Deployments and intratheather movements are operational maneuver if they achieve a positional advantage and influence the outcome of a campaign or battle."[3] Currently, the Army does not conduct operational maneuver with mechanized forces using inter- or intra-theater lift because of the limitations of the current force**.** The weight of our heavy forces limits the ability to attack the enemy throughout the operational depth of the battlespace with ground maneuver forces. The weight prevents movement of large forces using intra-theater airlift, additionally the Army's weight limits the options available to policymakers and requires a build-up of equipment and resources. As the Army transitions to a Future Combat System (FCS) equipped force, the possibilities for operational maneuver by armored forces can grow exponentially. A lighter force possessing the same lethality of the Army's current heavy force can provide numerous options to support operational maneuver using intra-theater lift as well as providing strategic deployment from the United States to contingency areas. The thesis for this monograph is the Army can redefine operational maneuver with the FCS while operating in a joint environment.

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[2] Ibid., III-IV

[3] Headquarters Department of the Army. *FM 3-0 Operations* Washington, D.C., 2001, p 4-4

PROBLEM BACKGROUND AND SIGNIFICANCE

The reality of the geopolitical landscape has changed considerably since the demise of the Soviet Union. The stabilizing existence of the two superpowers, which exerted influence to every corner of the world, and limited wars, has disappeared. The world is now more unpredictable and therefore more dangerous. Armed conflict did occur during the forty-five year timeframe that encompassed the Cold War. However, each superpower understood that nearly every encounter could escalate to a global war. The threat of global war also brought with it the possibility of a destructive end to each nation, which neither seemed interested in witnessing. The possibility of mutually assured destruction was instrumental in tempering conflict between the two superpowers,[4] in addition, it caused them to intervene with other allied states to limit or prevent conflict. Nations who allied with the superpowers normally shared the same ideological belief of the superpower with whom allied. The demise of the Soviet Union not only removed the stability in the world observed during the Cold War it also signaled an end to political alliances. In the future, countries may form alliances and coalitions not on ideological beliefs, but on cultural similarities. This change to cultural identification from ideological beliefs may affect future operations of the U.S. military.[5] The causes for this change, as well as the affects on the changes for United States policy, are based upon Samuel P. Huntington's paradigm for the evolution of global politics.[6]

Huntington's paradigm outlines correctly both the strategic and operational environment the United States military may face in the future. Huntington states nation states are and will remain the most important actors in world affairs, but their interests, associations, and conflicts

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[4] Encarta Encyclopedia Online available from http://encarta.msn.com/encyclopedia_701610456_2/Manhattan_Project.html#p60; Internet; accessed 24 January 2004

[5] Quadrennial Defense Review 2001. Washington, D.C., 2001, p 3

[6] Samuel P. Huntington, *The Clash of Civilizations Remaking the World Order* (New York: Simon & Schuster, 1996)

increasingly are shaped by cultural and civilization factors.[7] The United States witnessed first hand the paradigm identified by Huntington during the build up for Operation Iraqi Freedom (OIF). The United States wanted to open a second front in northern Iraq by moving a heavy armored force through Turkey. Turkey, a democratic state and a long time NATO ally did not join the coalition against Iraq and refused the use of its territory for the invasion of Iraq.[8] During the Cold War era when ideology shaped conflict, Turkey may have permitted use of its territory by the United States during the invasion. Although Turkey did not join the coalition and denied access to northern Iraq, U.S. Air Force aircraft were allowed to fly through Turkish airspace. Denying access to the United States armored force allowed the Turkish government to meet the demands of their population while providing the use of some facilities and its airspace it provided limited support to the coalition against Iraq.[9] The policy taken by the Turkish government to provide limited support to the United States during OIF may be a prelude of things to come. The United States can no longer depend on total support from allies in a time of crisis and the current force structure is unable to take advantage of limited support such as provided by Turkey. The responsiveness and deployability of the current force limits the options the Army can provide to the President or Secretary of Defense. The Army identified these problems with others and has begun transformation of its heavy force to a lighter one based on capabilities known as the Unit of Action (UA). The Future Combat System (FCS) is the combat vehicle system that will compose the UA. The document outlining the transformation of the Army is the "Concept of the Objective Force White Paper." The Objective Force is now known as the Future Force and will provide the Army a capabilities-based force based on: responsiveness, deployability, agility,

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[7] Ibid., p 36

[8] Gerry J. Gilmore, U.S., Turkey Announce Operation Iraqi Freedom Support Agreement [News Article] (American Forces Press Service April 2, 2003); available from http://www.defenselink.mil/news/Apr2003/n04022003_200304026.html; Internet; accessed 28 September 2003.

[9] Ibid.

versatility, lethality, survivability, and sustainability.[10] Finally and most importantly, the FCS provides the Army the capability to bring lethal armored forces to the fight no matter the level of support provided by coalition partners or the environment operations will occur, because it will not require a permissive environment nor standard airports and seaports, but can operate from austere locations.

METHODOLOGY

It is necessary to illustrate and describe the development of maneuver warfare, as it exists today to answer effectively the thesis. In order to do this, the author will focus on the last great transformation made in maneuver warfare World War II. Specifically the author will focus on the Germans and their success during the invasion of France and their subsequent failure in Russia and the reasons why. The lessons of the German experience during the last great transformation of maneuver warfare can provide the Army insight as it begins transformation focused on the FCS and the UA.

The analysis of World War II will serve two purposes. First, it describes how the Germans introduced maneuver warfare based on lessons learned of combined arms warfare from World War I with the panzer as the integral weapon system of modern maneuver warfare. Second, it will demonstrate Army maneuver operations continue to resemble those used during World War II. Today, our maneuver is restricted to assaults, based on a linear battlefield, and does not seek to attack the enemy throughout the breadth and depth of the battlespace. The ability to conduct operational maneuver of armored forces will prove invaluable as the environment continues to change and will provide the United States with the capability to conduct

[10] Headquarters Department of the Army. United States Army White Paper *"Concepts for the Objective Force"* Washington, D.C., 2000, p IV

operations without large build-ups of material nor be hindered by the inability to get support for positioning forces from other nations.[11]

The Army Operations Manual FM 3-0 defines the characteristics of offensive operations as surprise, concentration, tempo, and audacity. The characteristics of the offense outlined in FM 3-0 will support the thesis that the FCS can allow the Army to redefine operational maneuver. Surprise is defined in FM 3-0 as attacking an enemy at a time or place he does not expect or in a manner, which he is unprepared.[12] The same manual defines concentration as massing overwhelming effects of combat power to achieve a single purpose.[13] The characteristic of tempo allows commanders to maintain momentum and retain the initiative.[14] Finally, FM 3-0 defines audacity as a simple plan of action boldly executed.[15]

For the FCS to be successful in redefining operational maneuver, the joint fight must be successful in the following areas which Major General Heinz Guderian identified as requirements for panzer attacks to be successful: reconnaissance, artillery, aircraft (tactical/cover), and signals and communication systems.[16] During the analysis of World War II combined arms operations, the areas identified by Guderian in *Achtung-Panzer!* will be used to describe the development of blitzkrieg tactics. Additionally, the author will show how blitzkrieg tactics failed when the Germans did not dominate in these areas. Although blitzkrieg was a tactical method when successful, it provided the Germans with operational and strategic level success. The FCS and the supporting arms commonly known today as the Joint Force will have to be successful in order for the FCS to redefine operational maneuver.

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[11] Headquarters, US Army Training and Doctrine Command, TRADOC Pamphlet 525-3-90. *Objective Force Operational and Organizational Plan Maneuver Unit of Action,* Ft. Knox, KY 30 June 2003 p 1-6

[12] Headquarters Department of the Army, *FM 3-0 Operations*, 7-4

[13] Ibid., 7-5

[14] Ibid., 7-6

[15] Ibid., 7-6

[16] Major–General Heinz Guderian *"Achtung-Panzer!"* (London: Arms and Armour Press, 1992), p 188-197

In order to determine the feasibility of redefining operational maneuver with the FCS the requirements used by Guderian are used. The author will use reconnaissance, defined in FM 101-5-1 as missions undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy.[17] Reconnaissance will be instrumental in selecting locations for intra-theater employment of the FCS as well as providing accurate information to FCS units once on the ground. The ability to integrate reconnaissance assets from the strategic level to the tactical level will give commanders at the tactical level situational awareness unparalleled in the history.[18]

Guderian when identifying artillery as instrumental to success of panzer attacks was looking at artillery supporting the operations of panzer formations.[19] The missions of the artillery ranged from attacking those targets which would impede or delay the advance of the panzers to attacking targets deep to isolate the area of attack.[20] Instead of using artillery that will accompany the FCS, the analysis of artillery will focus on the precision fires available from both air and naval forces to address operational level fires. Once on the ground FCS units will maintain fire superiority throughout its operational depth using joint assets. The ability to target critical vulnerabilities using information gathered through reconnaissance will aid the FCS as it attacks to seize objectives.

Guderian identified two roles for aircraft during panzer attacks: tactical support and cover. Although air supremacy is a goal to strive for, the FCS to be successful needs joint air forces that can achieve air superiority and provide additional precision fires as part of the joint operational fires mentioned earlier. There is no need to identify one service component when discussing air power. The key is the service component that supports the FCS achieves air

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[17] Headquarters Department of the Army. *FM 101-5-1 Operational Terms and Graphics*. Washington, D.C., 2001, p. 1-130

[18] US Army Training and Doctrine Command, *Objective Force Operational and Organizational Plan Maneuver Unit of Action,* 4-4 thru 4-7

[19] Guderian, *"Achtung-Panzer!"*, 192

superiority. Without air superiority, the option for intra-theater lift will not exist and if air superiority is lost, the ability to resupply and operationally maneuver using inter- and intra-theater lift is threatened.

The ability to communicate effectively was instrumental in the development of panzer tactics. The fielding of the FCS also requires effective communication ability for command and control as well as affording the ability to integrate assets of the joint force through command, control, communications, computers and intelligence, surveillance, and reconnaissance (C4ISR). If the United States continues to dominate in these areas, the FCS can redefine operational maneuver for the United States military, and the Army.

CHAPTER TWO

WORLD WAR II

The unique thing about World War I and the introduction of armored warfare is that of all the participants locked in a life or death struggle twenty years later; only the Germans felt and witnessed the destructive power of the tank. This was not only from a firepower standpoint, but also from a psychological standpoint. Tank tactics and unit organization were firmly based on the German experience in World War I.[21] This factor together with the reliance on manpower based maneuver the Germans possessed during their last great offensive of World War I had a great deal to do with the development of the new tactics that took advantage of this new element of warfare. The focus on tanks and mobility coupled with the traditional German belief in flexibility, mobile tactics, and initiative at the lowest levels would spawn what the world came to know as Blitzkrieg tactics in World War II.[22]

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[20] Ibid., 193

[21] James S. Corum *The Roots of Blitzkrieg* (Lawrence: University Press of Kansas),p.125

[22] Williamson Murray, and Allan R. Millet, ed *Military Innovation in the Interwar Period* (New York: Cambridge University Press, 1988), p 37-38

Mechanized transportation using the tank, armored vehicles, and trucks provided armies after World War I with new opportunities for advancement. It allowed armies to begin operating away from railroads, which was the last great revolution in transportation armies experienced. Prior to their introduction armies moved by rail and were tied, to rail when maneuvering because supplies arrived by rail. Because of this dependence on the rail, army-operating ranges averaged about 25 miles from the supporting rail line at the farthest.[23] The Germans identified the new possibilities mechanized maneuver offered and adopted them to the degree allowed under the Versailles Treaty. Although the Germans were restricted from, possessing tanks under the treaty it did not prevent them from training and developing doctrine for their employment. In 1924, the army was ordered to ensure each unit and garrison had someone assigned as "Armor Officer." In order to train, they used mock-ups to represent friendly and enemy armor formations. They also trained on actual tanks in cooperation with the Russians in the late 20's.[24]

Mechanized maneuver joined with infiltration tactics that proved so successful for the Germans during their last great offensive in 1918 gave rise to the armored idea. Major General J.F.C. Fuller explained the armored idea in an article he wrote in 1918 titled *Strategical Paralysis as the Object of the Decisive* Attack. The main points were:

> The fighting power of an army lies in its organization, which can be destroyed either by wearing it down or by rendering it inoperative. The first comprises killing, wounding, and capturing the enemy soldiers – body warfare; the second in rendering inoperative his power of command – brain warfare…The brains of an army are its Staff – Army, Corps, and Divisional Headquarters. Could they suddenly be removed from an extensive sector of the front, the collapse of the personnel they control will be little more than a matter of hours. As our present theory is to destroy personnel, our new theory should be to destroy command, not after the enemy's personnel has been disorganized but before it has been attacked.[25]

It is certain that experiences of the German Army in World War I and the studying of such theorist as Fuller by leading German panzer leaders influenced blitzkrieg tactics which sought to destroy armies not through direct action, but by the indirect approach of attacking

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[23] Matthew Cooper, *The German Army 1933-1945* (New York: Bonanza Books. 1984), p. 140
[24] Corum, *The Roots of Blitzkrieg*, 133
[25] Ibid., 141

command and control nodes and psychologically defeating the forward deployed forces. The armored idea consisted of three main principals: breakthrough, penetration, and aim.[26] The massing of armored forces at the enemy's weakest point provides local superiority, which allows the breakthrough to occur. Once the breakthrough occurs, the penetration follows with the aim of not destroying enemy forces but driving to the rear of the enemy to disorganize and threaten important areas. In actuality the penetration seeks to get within the enemy's decision cycle forcing him to react to immediate threats in the rear rather than things occurring at the front. The final principal is that of the aim. The aim seeks to turn a tactical advantage into a strategic one, which occurs again not by direct killing of enemy forces, or capture of his troops but rather by rendering his ability to command inoperative.[27] The psychological impact is just as damaging as the loss of communication between forward forces and their headquarters. The forces at the front faced with the unknown and the knowledge that enemy forces are in the rear areas leads to paralysis and makes victory possible.

The ability to maneuver based on mechanized forces and ridding the restrictions imposed by maneuver tied to the pack animal, human power, and railroads offered the Germans the ability to win quickly on one front and then move to the next front. Germany has always been faced with the possibility of war on two fronts and all of her plans focused on winning quickly. The threat of a two front war forced the Germans to focus on maneuver-based warfare to secure quick decisive victories since its creation during the wars of unification. Although the tank and mechanization offered new possibilities for maneuver, Guderian realized the tank alone could not be a decisive weapon without mechanization of all supporting arms, once this occurred maneuver warfare would realize its true potential. This idea developed in his book *Achtung Panzer!* served as the blueprint for how he envisioned panzer forces employment in battle.

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[26] Ibid., 145-146
[27] Cooper, *The German Army 1933-1945*, 146

In *Achtung Panzer!* Guderian outlined the requirements for a successful panzer attack as suitable terrain, surprise, and mass attack throughout the breadth and depth of the battle space.[28] As stated earlier Guderian did realize the limitation of the tank and believed it could not reach its full potential unless the other arms became motorized as well as providing certain functions to ensure the success of any attack. Of the other arms of the army addressed in his book for the purpose of this monograph, the focus is on reconnaissance, artillery, aircraft (tactical/cover), and signals and communication systems. These supporting arms commonly referred today as components of the Joint Fight and without their success, the FCS will not be successful in redefining operational maneuver.

The ability to identify the weak spot of enemy forces in order to concentrate armored forces for an attack at the weakest point was determined through recon. Recon was primarily the responsibility of aircraft; however, ground formations possessed the assets to determine the weak spots in the enemy line once the attack began. These two assets combined to ensure the positions identified for armor breakthroughs were ideal and supported Guderian's belief that surprise was a key element of successful armor attacks.

The primary weapon of World War I, artillery, would have to undergo a transformation to a more mobile system in order to maintain responsive fires for the new maneuver warfare.[29] In order to ensure some type of indirect fire capability was available to armored forces as they attacked deep into the enemy rear the use of tactical aircraft became imperative. Aircraft not being inhibited by terrain and could not only attack forces at the point of penetration but also attack forces throughout the depth of the penetration and prevent the timely arrival of reserve or support forces to adversely affect the penetration. Although the Germans were not able to possess large caliber artillery or an air force because of the Versailles Treaty it did not prevent

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[28] Guderian, *"Achtung-Panzer!"*, p 181
[29] Ibid., 192

them from developing doctrine based on the integration of these systems with the new form of mechanized maneuver. However, as with the tank the Germans found ways to ensure continued development of air operations. The representation of air effects was present in all war games and in order to maintain a ready pool of pilots civilian glider clubs were formed.[30] Additionally airframes developed for the civilian air industry, could also serve in a military capacity with some modification.

There are numerous innovations in maneuver warfare the FCS can take advantage of. They include distributed maneuver, which allows massing from multiple points of entry on the battlefield, to defeating conventionally equipped armies through the indirect approach. However, before employment of the FCS a tactical system that can achieve operational and strategic results the use of the three criteria identified for successful panzer: surprise, suitable terrain, and concentration deserve consideration. Guderian identified these criterion in *Achtung-Panzer!;* moreover, their successful implementation was the first step in ensuring the panzer, another tactical system, could be successful in both the operational and strategic level of war. Once met, these criterion combined with the supporting arms of the military must be dominant in the areas of reconnaissance, artillery, air support, and communications based on the requirements of the operation. In order to illustrate how success can be attained using the ideas outlined by Guderian, the successful operations of the German Army against France in 1940 will be discussed, in which the Germans dominated in the operation of the supporting arms. The domination in the supporting arms as well as the ability to meet the three criteria identified for successful panzer attacks allowed the panzer to have not only tactical success, but also more importantly operational and strategic success. Less than a year and a half later, the same tactics proven so successful during the invasion of France only yielded failure for the Germans. The failure of the Germans in Russia illustrates the risks involved when tactical systems that provide successful

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[30] Corum, *The Roots of Blitzkrieg*, 149

operational and strategic results in some instances are used without domination in the supporting arms that allows such successes to occur. These analyses will demonstrate the minimum necessary requirements to allow the FCS to redefine operational maneuver for the Army.

Panzer Success: The Invasion of France

The panzer tactics envisioned by Guderian and outlined in *Achtung Panzer!* were employed successfully during the invasion of France. Although the tactics would come to be known as Blitzkrieg tactics, the Germans did not coin this name. Instead, it was given to them by an article in "Time Magazine" in a September 1939 article describing the war with Poland when the tactics were first employed.[31]

In addition to the supporting arms, Guderian identified three criterion for successful panzer attacks: surprise, suitable terrain, and lastly concentration, discussed briefly earlier. The invasion of France was successful in part because of the Germans ability succeed in these three requirements. These requirements in conjunction with dominance of the supporting arms of reconnaissance, artillery, air, and communications were instrumental in the successful German invasion of France.

Surprise in battle normally occurs in two forms: strategic or tactical and for the invasion of France; the Germans were successful in both. The Germans achieved strategic surprise by attacking in an unsuspected area, which in 1940 was through the Ardennes with a majority of its armored formations. Tactical surprise is achievable in the same forms as strategic surprise; however, for the invasion of France the Germans achieved tactical surprise through a new form of organization with parachutists, tanks, and motorized infantry.[32] Surprise aids in achieving victory immeasurably but alone does not ensure victory if the advantage gained is not immediately acted upon because enemy forces can recover from any advantage gained by surprise. Surprise is only

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[31] Ibid., 116

temporary and the attacker must possess the capability to exploit it. The Germans were able to do this through the organization of the panzer division. The speed of panzer divisions afforded the Germans the ability to exploit the successes gained through surprise.

Suitable terrain the next key to success in panzer attacks concerns the ability to choose terrain that maximizes the capabilities of the panzer divisions, which are speed, firepower, and mobility. Although the decision to assign seven of the ten panzer divisions[33] in the German Army to Army Group A, which maneuvered through the Ardennes, did not optimize the capabilities of the panzer it did support the other requirements of successful panzer attacks surprise and concentration. Many believed the Ardennes was impassable to armored formations and as a result, the French forces assigned to defend the area were of lower quality and not as well armed as those forces scheduled to move into Belgium to stop the German invasion.

The final criteria for successful panzer operations is concentration or as termed today mass. The U.S. Army defines mass as the concentration of combat power or to concentrate and bring together fires and finally to mass fires of multiple weapons or units.[34] The Germans were able to achieve mass at the point of penetration through numerous efforts to include deploying seventy percent of the available panzer divisions there. In addition to deploying a majority of the panzer forces available for the attack through the Ardennes, the 45 divisions to include the panzer divisions that made up Army Group A were more forces than allocated to the other participating Army Groups.[35] The advantage on the ground extended to the air where the Germans possessed 3700 aircraft, which outnumbered the allied aircraft in France by 900.[36]

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[32] Major Ferdinand Otto Miksche, *Attack "A Study of Blitzkrieg Tactics"*(New York: Random House, 1942) p.6

[33] J.F.C. Fuller, *A Military History of the Western World* (New York: Funk & Wagnalls Company, Inc. 1956)p. 388

[34] Department of the Army, *FM 101-5-1 Operational Terms and Graphics*, 1-98

[35] Larry H. Addington *The Patterns of War Since the Eighteenth Century* (Bloomington: Indiana University Press.1994)p. 202

[36] Ibid., 204

The French decision to defend along the entire frontier in conjunction with moving its mechanized forces rapidly into Belgium to meet the perceived main attack of the Germans meant the panzer divisions could exploit any penetration of the defensive line. The combination of French deployment and ability of the Germans to be successful in the criterion identified by Guderian for successful panzer attacks allowed the Germans to exploit the success of a tactical system the panzer to gain operational and strategic success.

The dominance by the Germans in the areas of the supporting arms mentioned earlier reconnaissance, artillery, air, and communications proved instrumental in success of the German invasion. The Germans success in reconnaissance was possible through the integration of the Luftwaffe and the reconnaissance assets organic to the panzer divisions. A 'Koluft' officer who was a Luftwaffe officer assigned to the German army was in charge of the airborne reconnaissance units assigned to each army.[37] The creation of this officer billet was an attempt to improve upon lessons learned during the invasion of Poland concerning air and ground integration and communication. A technique used throughout the German Army was for air reconnaissance photographs to be dropped regularly to mobile headquarters so commanders knew what resistance lay ahead.[38] Airborne reconnaissance elements reported to army headquarters the movement and disposition of enemy forces in the rear, which aided commanders in determining the actions to take before and after the crossing of the Meuse by Army Group A. The organic reconnaissance assets of the panzer divisions such as motorcycle units allowed the determination of the disposition of enemy forces in direct or close proximity to front line troops. Once the penetration was successful and little resistance was evident in the rear areas, some German commanders used armored reconnaissance battalions accompanied by engineers to scout up to a

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[37] Martin van Creveld with Steven L. Canby and Kenneth S. Brower *Airpower and Maneuver Warfare* (Maxwell Air Force Base: Air University Press. 1994) p. 48

[38] Len Deighton *Blitzkrieg: From the Rise of Hitler to the Fall of Dunkirk* (New York: Ballantine Books. 1979)p. 156

days ahead of their formation.[39] While the airborne reconnaissance focused on the rear areas and enemy forces moving to the front. The organic assets focused on the close fight. This information provided the commander the ability to take advantage of enemy force dispositions and movements while acting at a time and place of his choosing.

As mentioned earlier the Germans were limited in the caliber and quantity of artillery it could possess by the Versailles Treaty. In order to retain the capability of artillery to support fast moving panzer attacks, the Luftwaffe developed tactics to augment organic artillery. The close cooperation between the army and the Luftwaffe is illustrated best during the crossing of the Meuse River. Unlike other operations, the Luftwaffe did not have to worry about coordination with the army because the Meuse was a natural boundary and enemy forces were located on the western side. Beginning on 13 May, the Luftwaffe sent hundreds of sorties against the French soldiers in an effort to support the river crossing. The inclusion of the Luftwaffe serving as aerial artillery to augment the artillery of the panzer divisions was instrumental in massing indirect fire on the defending French troops, which prevented them from defending against the crossings.[40]

The Luftwaffe was another branch of military service limited by the Versailles Treaty. Although prevented from having an air force, the Germans developed doctrine for the employment of aircraft with the army.[41] The Luftwaffe had three missions for the invasion of France. First was achieving air superiority. They accomplished this by combining the effects of attacking allied air forces on the ground and then destroying them if they made it airborne. Once air superiority was attained, maneuver forces could move without fear of attack from enemy air. It also allowed the Luftwaffe to concentrate on its second mission, ground support as well as

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[39] Jonathan M. House *Combined Arms Warfare in the Twentieth Century* (Lawrence: University of Kansas Press)p. 115

[40] Robert Doughty *The Breaking Point Sedan and the Fall of France, 1940* (Hamden: Archon Books 1990)p.136

[41] The German Art of War (or, Truppenfuhrung) was written in two parts first in 1933 and then in 1934. The 1934 edition outlines the make-up of the air force as well as the missions it will be responsible for such as reconnaissance, air superiority, close air support, and bomber missions.

interdiction of enemy forces moving in the rear. Finally, the Luftwaffe supported the invasion of France through the employment of airborne infantry and glider troops. The final domination of the supporting arms key to the success of the German invasion of France was in the communication and signals area. This area more than any other of the supporting arms the Germans held an advantage over the allies. Guderian was the most influential proponent of mechanization. A former signal officer, he insisted on a radio mount in every tank, which greatly enhanced its potency.[42] The early problem of communication between tanks and the supporting arms was identified by Ernst Volckheim a German tank officer from World War I.[43] The inclusion of radios in tanks provided the Germans an advantage over the allies, the French in particular who relied on the telephone and courier to issue orders. The Germans also provided all of their aircraft with radios, which allowed communication with the air liaison officer known as the "Koluft" officer located with the ground forces. The radio was the perfect communication tool for the Germans and their execution of blitzkrieg tactics. Telegraphic communications were unusable because of the speed of the mechanized force.[44]

In conclusion, the Germans succeeded in the invasion of France because of surprise, suitable terrain, and concentration. These factors were instrumental in setting conditions for success; however, the Germans dominance in the supporting arms of the panzers: reconnaissance, artillery, air, and communications were the keys to exploiting the success they offered. German reconnaissance allowed commanders to take advantage of opportunities afforded them by their fast-paced maneuver. The German artillery supplemented by close air support allowed the Germans to mass effects at the point of penetration[45] to allow a breakthrough and the ability to gain air superiority. It also insured the unimpeded maneuver of ground forces by enemy air.

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[42] Christopher Bellamy, *The Evolution of Modern Warfare, Theory and Practice*, (New York: Routledge,1990),p. 84

[43] Corum, *The Roots of Blitzkrieg*, 123

[44] Guderian, *"Achtung-Panzer!"*, 197

Finally, the innovative use of communication systems throughout the force proved to be a force multiplier for the Germans. It was safe to assume this new combined arms warfare based on mechanized maneuver would allow the Germans unlimited success; however, they would soon meet failure in Russia. This failure can be tracked to a violation of the three keys to success as well as the inability to dominate with the supporting arms of the panzer forces.

Panzer Failure: The Invasion of Russia

There are a myriad of reasons the invasion of Russia failed. The lack of a coherent strategic plan is one of the most discussed reasons. However, the inability to adhere to the requirements for successful panzer attacks as well as domination by the supporting arms was as much to blame as the perceived lack of a strategic plan. The panzer, a tactical system when employed with the prerequisites identified by Guderian was successful for the Germans during the invasion of France and provided them with operational as well as strategical success. The same tactics without the successful attainment of the criterion identified earlier and dominance in the supporting arms prevented the Germans from succeeding in Russia. The absence of a strategic plan did not doom the Germans to fail during Operation Barbarossa; however, the inability to concentrate panzer forces as well as the failure to dominate in the supporting arms did.

As discussed earlier the requirements for a successful panzer attack as identified by Guderian are suitable terrain, surprise, and concentration. The Germans were successful in two of these three requirements for the invasion of Russia; however, they failed to concentrate which prevented exploitation of the advantage gained through surprise. Unlike the invasion of France in which the Germans concentrated seven of its ten panzer divisions for the breakthrough, each of

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[45] Doughty, *The Breaking Point Sedan and the Fall of France, 1940*, 323

the three Army Groups for the invasion of Russia possessed almost the same amount of panzer forces.

Army Groups North and South possessed one panzer group while Army Group Center possessed two, the panzer groups in Army Group North and South possessed three panzer divisions each while Army Group Center had a total of nine panzer divisions between its two panzer groups and finally each panzer group had three motorized infantry divisions assigned to it. At first glance, the numbers would lead one to believe the Germans had increased its numbers of panzers with the increase in divisions; however, although the divisions increased the actual panzers assigned dropped from 300 per division for the invasion of France to an average of 199 for operation Barbarossa.[46] The drop in assigned panzers per divisions allowed the Germans to form more divisions but the quality and capability suffered as a result.

The German plan for the invasion of Russia focused on destroying the mass of the Russian Army in western Russia using a quick deep thrust and then envelopment to destroy those forces.[47] The Germans were preoccupied with Napoleon's Russian Campaign in which the Russian Army did not fight, but instead withdrew preventing a battle of decision, which could lead to their destruction. This preoccupation led to the fixation on envelopment to destroy forces physically instead of allowing them the possibility to escape. This fixation also changed the employment of the panzer divisions from free maneuvering formations using deep thrusts to psychologically defeat the enemy to mobile forces restricted in movement and tied to infantry forces focused on physical destruction of the enemy, which violated the ideas of Guderian as well as the armored idea.

Although the Germans succeeded in gaining surprise as well as attacking along suitable terrain for panzer divisions, the failure to concentrate panzer formations prevented maximizing

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[46] Cooper, *The German Army 1933-1945*, 276
[47] Ibid., 268

effects as done during the invasion of France. The sheer size of the task of invading Russia required an enormous amount of men and material in order to dominate in the supporting arms for the attack. However, the Germans only had 15 more divisions available for service than they had for the invasion of France.[48]

It is true the Germans had more Divisions for Operation Barbarossa than they had for the invasion of France, but as already illustrated, these divisions were not as strong as those used for the invasion of France were. Additionally, there were now requirements for forces throughout Fortress Europe to protect Germany from England and govern conquered territories. The result of these requirements prevented the Germans from dominating in the most important supporting arm, air, while dominating for a short period in reconnaissance, artillery, and communications.

Prior to Operation Barbarossa, the Luftwaffe unlike other branches of service in the German military had been fighting a two front war since the fall of France. The first and most important front was defense of the German homeland from Britain. The Luftwaffe had not only participated in the Battle of Britain and lost; it was now focusing on protecting the homeland from British bomber attack. The second front arose in northern Africa where Germany was aiding its ally Italy against England. Because of these fronts and the resources required to support them, the Luftwaffe was unable to mass forces for the invasion. With the undertaking of the invasion of Russia, the Luftwaffe would be fighting a three front war with limited resources. Massing of assets by the Luftwaffe was imperative if it was to succeed at the tasks assigned for the invasion because the Soviet Air Force outnumbered them by a two to one margin.[49] Unfortunately, the requirement of a multiple front war prevented the massing of forces for the invasion, which prevented the Luftwaffe from accomplishing the tasks assigned to it for the invasion, command of the air and supporting ground operations.

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[48] Ibid., 270
[49] Cajus Bekker, *The Luftwaffe War Diaries* (New York: Da Capo Press. 1994),p. 218

Both of these tasks were accomplished during the invasion of France and as a result, the panzer formations did not have to worry about attack from the air as well as receiving important support from close air support. Freedom of maneuver combined with relentless attack from the air from the Luftwaffe aided the panzer formations composed of tactical systems to be successful at the operational and strategic levels of war. The ability to dominate the air during the invasion of France was instrumental in the panzers success. The difficult task of gaining command of the air was illustrated on the first day of the invasion when Soviet fighters met Luftwaffe planes taking off on their second attack of the day. After the first day of battle the Soviets had lost in excess of 1800 aircraft while the Germans lost thirty-five, [50]although these numbers are high, the Germans never gained command of the air, which had adverse affects on the success of the panzer formations. The Battle of France displayed the integral relationship between air and ground forces but this relationship never enjoyed the same success during the invasion of Russia.

In conclusion, the Germans failed to turn the tactical success of panzer formations into operational and strategic success during the invasion of Russia because of a failure to concentrate panzer forces as well as a failure to dominate in the supporting arms of the military, most notably air. The panzer doctrine expressed by Guderian focused on a combined arms force, which executed quick deep thrusts led by a concentration of panzer formations to bring about the defeat of the enemy.[51] The Germans developed a comprehensive air doctrine that emphasized the tactical role of the air force in supporting ground forces.[52] The ability to control the air was instrumental in the success of maneuver forces as well as speeding up the psychological defeat of the enemy as expressed by the armored idea. However, the numerous requirements of the Luftwaffe to protect the territory already gained by Germany prevented it from massing forces for the invasion, and as a result, the Russian Air Force was never defeated. The inability to defeat

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[50] Ibid., 221
[51] Guderian, *"Achtung-Panzer!"*, 190
[52] Corum, *The Roots of Blitzkrieg*, 167

the Russian Air Force prevented the Luftwaffe from concentrating on supporting the ground forces. The failure to adhere to the panzer tactics developed by Guderian as well as the scarce Luftwaffe resources prevented the Germans from executing their doctrine, as had been the case in the Battle of France.

In summary as we look forward on the ability of the FCS to redefine operational maneuver there are examples throughout history which display how major changes in warfare where developed through new and innovative applications of the technology available. The primacy of maneuver over firepower was established at the beginning of World War II, when the Allies who outnumbered the Germans in many key areas prior to the invasion of France were defeated through aggressive maneuver by the Germans. The Germans were able to turn tactical success into operational and strategic success through the dominance of the supporting arms of the panzer forces. The supporting arms identified by the Germans are today referred to as elements of the Joint Force. In order for the FCS to redefine operational maneuver the Army must be successful in the Joint Fight. Failure to dominate in this area will prevent the setting of the conditions that allows tactical systems to have operational and strategic success.

A short time after their success in France the Germans failed in the invasion of Russia using the same tactics that proved successful. Although the same tactics were used, the situation was different. The sheer size of the terrain in which the Germans invaded prevented concentration, and adversely affected the ability of the Germans to dominate in the supporting arms. The failure to dominate in the supporting arms was a major reason for their failure. As the U.S. Army moves forward with the FCS and the Future Force, it is important to take lessons from the pass in an attempt to redefine operational maneuver; however, there must also be a realization that tactical systems acting alone cannot provide success in the operational and strategic levels of war.

CHAPTER THREE

REDEFINING OPERATIONAL MANEUVER WITH THE FCS

This chapter will focus on description of the Future Force and the vision for its employment as part of the Unit of Action. The Future Force has replaced the Objective Force as the name used to discuss Army capabilities that will be developed as part of transformation. The documentation used in preparation of this monograph was written before the name change and as a result identifies capabilities of an Objective Force. The changing strategic environment and the requirement to deploy more quickly led the Army to begin transformation towards a Future Force. The goal for the Future Force is a more strategically responsive, deployable, agile, versatile, lethal, survivable, and sustainment force across the entire spectrum of military operations.[53] The organizations for employment of the Future Force consist of the Unit of employment and the tactical formation known as the Unit of Action. The Unit of Employment (UE) is a highly tailorable, higher level echelon organization that integrates and synchronizations Army forces for full spectrum operations at the higher tactical and operational levels of war.[54] The Units of Action (UA) on the other hand is a tactical organization based on modularity and serves as the basic building blocks of combined arms combat power.[55] The employment of the Future Combat System (FCS) as part of the UA and the integrated capabilities it will possess from the Joint Force allows it to be successful at the tactical and operational level of war. However, in order for the FCS to provide the capability for the Army to redefine operational maneuver dominance in the Joint Fight is necessary. At the conclusion of the chapter, the reader should understand fully the vision for the Future Force and how the FCS and its capabilities can allow the Army to redefine operational maneuver with the continued dominance of the United States in the Joint Fight against potential adversaries.

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[53] United States Army, "Concepts for the Objective Force", IV
[54] US Army Training and Doctrine Command, *Objective Force Unit of Employment Concept*, 6
[55] Ibid.

FUTURE FORCE

With the continuing change in the world, the potential enemies of the United States and its allies are also changing. The recent history of operations undertaken by the United States and its allies has demonstrated to potential enemies the superior power brought to the fight. As a result they will seek to employ anti-access strategies comprising several integrated lines of action (from diplomacy to information operations to direct and indirect military actions) aimed at preventing or limiting impact on regional crisis by the U.S. and its allies.[56] Anti-access capabilities could include theater ballistic missiles, cruise missiles, long-range rockets and artillery, weapons of mass destruction and other unconventional means, and information operations.[57]

The current Army force structure allows possible enemies to employ anti-access strategies because of its reliance on permissive environments for projection of forces and build-up of combat power. One of the six transformational efforts outlined in the *Quadrennial Defense Review Report 2001* is the ability to project and sustain US forces in distant anti-access environments and defeating anti-access threats.[58] The Army is comprised of different organizations designed to work across the entire spectrum of operations with strengths and weakness based on the organization. Some of the organizations in the Army are light infantry, airborne infantry, and mechanized forces comprised of tanks and infantry fighting vehicles. The current mechanized force, which is heavy, is not responsive or highly deployable from strategic distances. In order to increase the deployability of the mechanized force, strategically placed prepositioned equipment is located throughout the world; however, any deployment using these prepositioned stocks still requires a permissive environment. The light forces, which are responsive and highly deployable, lack the firepower to deal dominantly with mechanized forces

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[56] United States Army, *"Concepts for the Objective Force"*, 2
[57] Ibid.
[58] *Quadrennial Defense Review Report*, 30

it could encounter in contingency areas. Although the U.S. can get a presence on the ground quickly; the capability brought by light infantry forces may not be appropriate for the threat and might set the conditions for the enemy to win an information war. A light force could be defeated quickly through inflicting some casualties prior to the U.S. bringing its full power to bear.

The Future Force seeks to increase the ability of the Army to deploy to contingency areas quickly with the ability to defeat threats across the full spectrum of military operations. Future Force units will conduct operational maneuver from strategic distances, creating numerous problems for the enemy by arriving at multiple points of entry to include unimproved ones. The ability to deploy to unimproved areas removes the weakness of the current force, which requires a secure and permissive environment for build up of conventional forces as well as eliminating the predictive nature of the current force.

A major strength of the proposed Future Force is the ability to see first, understand first, act first, and finish decisively. Operations will be characterized by developing situations out of contact; maneuvering to positions of advantage; engaging enemy forces beyond the range of their weapons; and, as required, by tactical assault at a time and place of our choosing.[59] This will be accomplished by maneuvering tactical formations of the FCS linked by web centric command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR).

The ability to see first can be accomplished by integrating the systems available in the Joint Force with the Future Force. The integration of the multitude of systems available in the Joint Force will allow the Future Force to detect, identify, and track individual enemy units. Ideally, the Future Force will possess the reconnaissance and surveillance capabilities of the United States in a networked system, which will allow unparalleled access to not only tactical assets but also more importantly strategic assets. The use of all available assets also allows the Future Force to affect enemy operations unlike any time in the past. Seeing first is important in

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[59] United States Army, *"Concepts for the Objective Force"*, 6

determining the course of action to take, however the Future Force must also possess the ability to understand first.

The common operating picture (COP) produced by seeing first provides an unprecedented opportunity to understand what the enemy is doing and better anticipate its intentions.[60] The amount of time gained through seeing the enemy first and understanding his intentions allows the Future Force to gain and retain initiative, building momentum quickly for decisive operations. Seeing first as well as understanding the enemy through the COP is possible through domination in information operations and technology. Seeing the enemy and understanding his intention is critical in the ability to act before he does or is ready to respond.

Seeing and understanding first gives commanders and their formations the situational dominance needed to act first, and engage the enemy at a time and place with methods of their choosing.[61] The key to acting first is information dominance, which provides the assets to see first and then understand the enemy. If the Future Force fails to maximize the capabilities of the Joint Force and looses the ability to dominate information operations, its ability to act before the enemy is ready or at a time and place of its choosing will be hampered and possibly prevented. The strength of the Future Force is its ability to move to areas not expected by the enemy and once there decisively engage, and destroy enemy forces. This capability requires domination in the information area, which provides the ability to see first and understand first.

Once engaged the Future Force destroys the enemy's ability to continue the fight by destroying equipment and personnel through accurate direct and indirect fire, which will also incorporate the assets of the Joint Force. Future Force units will accomplish this by building momentum and rapidly transitioning to assault and exploitation operations without allowing the

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[60] Ibid. 7
[61] Ibid.

enemy time or opportunity to regroup and continue the fight.[62] The Future Force will maneuver by not only ground but also air, at all times seeking to assume positions of advantage which will provide the enemy multiple dilemmas and aid in their domination of the enemy. The Future Force will continue to exploit the initiative until they have broken the enemy psychologically and/or physically, thus achieving decisive victory.[63]

Future Force Design

The Future Force will be more strategically responsive and dominant and it will provide the Nation an array of more responsive, deployable, agile, versatile, lethal, survivable, and sustainable formations that are affordable and capable of resolving conflicts decisively.[64] These capabilities will enable the Future Force to win on the offense, to initiate combat on their terms, to gain and retain the initiative, build momentum quickly and win decisively.[65] If the FCS is to be successful in redefining operational maneuver then the responsiveness, deployability, and lethality of the force are important characteristics it must possess.

In order for a force to have any affect on a potential enemy, it must be in close proximity to the enemy. The first step in getting forces where they need to be is the forces' responsiveness. Responsiveness deals specifically with the ability of the U.S. to get forces to a contingency area quickly in order to deter adversaries or defuse a situation before it escalates into war. Currently, the U.S. deals with responsiveness through forward deployed units and prepositioned forces; however, this strategy does not necessarily address all areas where United States interest may be impacted and it requires a permissive environment as mentioned earlier. The ability to get forces to a crisis quickly is a crucial part of deterrence and at times, the mere threat of getting U.S. forces to the area can defuse a crisis. Responsiveness embodies time, distance, and sustained

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[62] Ibid., 8
[63] Ibid.
[64] Ibid.
[65] Ibid.

momentum.[66] Organized into more deployable, smaller, but more capable formations, the Future Force will exploit all military and commercial strategic lift to arrive in theater ready to fight, fully synchronized with other elements of the Joint Force. Advanced airlift and high speed, shallow draft sealift capabilities reduce the reliance on improved airfields and seaports and permit multiple entry points, even within austere theaters. The real key to strategic responsiveness is the ability of the Future Force to fight upon arrival, which negates the need to build combat power or logistical support bases.

To be truly responsive, Army forces must be deployable and capable of quickly and rapidly concentrating combat power in an operational area.[67] In order for the Army to meet, its goal of deploying a brigade combat team within 96 hours, the support of other members of the Joint Force is required. The ability to deploy Army forces can no longer rely on the use of conventional aerial ports of debarkation (APOD) and seaports of debarkation (SPOD) where the enemy will focus his denial efforts. The Future Force will seek to execute operational maneuver from strategic distances and should be optimized for commitment on short notice in immature theaters of operation.

Once fielded the Future Force's lethality should exceed that of today's conventional force because of increased use of technology, which will increase the ranges, and capabilities of the weapon systems used. Through technological improvements weaponry and munitions, the Future Force will have the capability to destroy enemy formations at longer ranges, with greater precision.[68] The integration of all assets in the Joint Force will increase the ability of the small tailorable units of the Future Force to deal with adversaries across the full spectrum of operations. Through simultaneous engagement with lethal and non-lethal assets of the joint team, the Future Force will directly attack the enemy's center of gravity and critical capabilities from which the

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[66] Headquarters Department of the Army. *FM 1 The Army* Washington, D.C., 2001, p33
[67] Ibid., p 34
[68] United States Army, *"Concepts for the Objective Force"*, 12

enemy derives his freedom of action, physical strength, or will to fight.[69] Tactical engagements will be characterized by development of the situation out of contact and the integration of standoff fires, skillful maneuver, and close combat assault to achieve tactical decisions simultaneously at multiple locations across the joint operations area (JOA).[70]

UNIT OF ACTION

The U.S. military's purpose is to protect United States national interest, and when called upon to defeat enemies who threaten those interests; the Army is the major ground combat force responsible to carry the fight on land. This requirement is a driving force in transforming the Army to a capability-based force that is able to leverage all of the capabilities provided by the other services.

The current organizations in the Army do not possess the complete array of responsiveness, deployability, mobility, agility, lethality, survivability, and sustainability necessary to dominate across the entire range of combat operations. Currently the United States Army has organizations designed for specific missions, which reduces the capability to use the entire force across the full spectrum of military operations. The organizations include light infantry, air assault, airborne, mechanized, and special operations. These formations offer numerous capabilities to respond to national interest in jungle, urban, desert, and rolling plains. They also offer numerous capabilities when in conflict with a peer competitor that possesses the same formations. However, these forces also possess limiting factors unique to each when considering employment. Light Infantry and airborne infantry are responsive and available for quick deployment across strategic distances, however they lack the firepower to deal with a mechanized force dominantly once on the ground. Mechanized forces are not as responsive or

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[69] Ibid., 13
[70] Ibid.

deployable as the previous forces mentioned; however, they possess the firepower to deal with mechanized threats. Their weakness however, they do not operate in complex terrain such as urban or jungle terrains without substantial infantry support. The UA will eliminate the limitations of the current heavy force and allow the employment of the entire force in a modular and tiered organization.

The Unit of Action (UA) is an attempt by the Army to develop new organizational and operational concepts optimized for offensive operations, which meets the seven characteristics, identified in the Objective Force White Paper. The increasingly demanding operational environment clearly demonstrates a need to build a ground force designed for rapid deployment and operations across the full spectrum of war. This team will be a "force projection" Army that is strategically and operationally responsive; an Army that can deploy a Future Combat Systems (FCS) equipped UA in 96 hours, a division (equivalent) in 120 hours and five divisions (equivalents) in 30 days, using a mix of air, sea, and land movement.[71] Although the deployability qualities of the Objective Force are significant, it is its' operational maneuver capability to conduct decisive operations that is the most relevant to the Joint Force.[72]

FCS

The combat system that will form the nucleus of the Future Force and the Unit of Action is the FCS. The requirements for the FCS outlined by the Operational Requirements Document focuses on responsiveness, deployability, agility and versatility, lethality, survivability, and sustainability.[73] An FCS equipped force that maximizes these seven requirements will ensure

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[71] Headquarters, US Army Training and Doctrine Command, TRADOC Pamphlet 525-3-90. *Objective Force Operational and Organizational Plan Maneuver Unit of Action,* Ft. Knox, KY 30 June 2003 p 1-3

[72] Ibid.

[73] Headquarters, US Army Training and Doctrine Command, *Operational Requirements Document for the Future Combat System,* Ft. Knox, KY Change 3 14 April 2003 p 7

land dominance across the entire spectrum of military operations with the continued dominance of the United States in the Joint Fight.

The FCS and the U.S. military are in a position to redefine maneuver to a degree not seen since World War II. At the beginning of World War II, the Germans proved successful with the employment of a tactical system the panzer with domination in the supporting arms of reconnaissance, artillery, air, and communications. Domination in these areas was instrumental in the panzer providing the German leadership with operational and strategic success. Success in the supporting arms was not in itself a key to success. The successful implementation of the three criteria for panzer attacks identified by Guderian suitable terrain, surprise, and concentration was the prerequisite without which any success in the areas of the supporting arms could not ensure success as was evident during the invasion of Russia.

Prerequisites for Success in Employment of the FCS

Once the decision is made to employ a FCS equipped, UA the identification of suitable terrain is the first step to be considered to ensure its successful employment using operational maneuver. Unlike in the past with the legacy force FCS units are not restricted to permissive environments or normal APOD's and SPOD's. In fact, the strength of FCS units is the ability to deploy to numerous points of entry in a contingency area most notably those in austere environments. This new capability of deploying anywhere in a contingency area ensures the next requirement for success of FCS units surprise is maintained.

The Germans were able to achieve surprise in the Battle of France through attacking in an unsuspected location with its main maneuver force. Because of the belief the Ardennes was impassable to tanks, lightly armed French forces defended them, and the French had minimal maneuver forces to delay or halt any breakthrough in the area. The FCS design allows deployability through C-130, C-17, and C-5 aircraft. Each of these aircraft offer capabilities to FCS equipped forces not enjoyed by the current force. The FCS's ability to deploy using both the

C-130 and C-17 allows it the ability to take advantage of the numerous austere points of entry in potential contingency areas, which are more readily available in most theaters.[74] The C-17, which also possesses the capability to use unimproved runways like the C-130, provides the capability to deploy over strategic distances to a contingency area. The capability to use austere points of entry increases the options available to the President and Secretary of Defense, it also ensures potential adversaries are unable to predict entry points of U.S. forces and allows the U.S. to maintain surprise at all levels of war. The ability to maintain surprise limits the response time available to the enemy and automatically puts deploying U.S. forces at an advantage and with the initiative.

The last and maybe most important requirement to ensure success when deploying FCS equipped units is the massing of forces across the depth and breadth of the battlespace. When determining mass in the employment of the FCS, it is important to take into account not only the lethal fires organic to the UA in which the FCS will operate, but also the lethal and non-lethal fires from the Joint Force integrated into the FCS through C4ISR. The Germans massed at points identified for penetration with not only panzer forces but also with the supporting arms most notably the Luftwaffe. The current force is able to mass and attack; however, the ability to attack throughout the depth of the battlespace with mechanized forces is limited for numerous reasons the most important of which is weight. As the Army moves forward with FCS equipped units, the ability to mass throughout the breadth and depth of the battlespace will increase.

There are two reasons why the ability to mass will increase with the FCS equipped Unit of Action. First, the ability to deploy to multiple points provides commanders the ability to present multiple dilemmas to the enemy that he must deal with. This can lead to enemy commanders dividing forces to meet the multiple dilemmas, which in turn allows commanders

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[74] US Army Training and Doctrine Command, *Objective Force Operational and Organizational Plan Maneuver Unit of Action*, 1-6

using distributed maneuver from multiple entry points to mass forces at the time and place of his choosing to defeat the greatest threat. The second ability mentioned here to mass is possible because of the integration of Joint Forces. The FCS will allow a linkage from sensor to shooter across service lines.[75] This new capability will allow the FCS to employ lethality from external forces of the UA and increased integration through network centric assets allows cooperative engagement from operational and strategic assets not in the UA. The ability to leverage all lethal and non-lethal assets from the strategic to the tactical level is something new to the battlefield for units operating at the tactical level. This capability will allow smaller forces to achieve mass not through combat systems on the ground but through the addition of joint assets providing lethal and non-lethal capability focused on effects rather than systems on the ground.

The required capabilities of the FCS will allow the Army to defend the interests of the United States when needed as well as set the conditions for success during employment of FCS equipped forces in the areas of suitable terrain, surprise, and massing of forces through the breadth and depth of the battlespace. The ability to be successful with employment of FCS equipped units is dependent on success in these three areas and the continued dominance of the United States in the Joint Fight.

FCS REQUIRED CAPABILITIES

In order for the FCS to meet the requirements of the Future Force, it must possess the capabilities outlined in the Objective Force White Paper. The seven capabilities outlined are a more strategically responsive, deployable, agile, versatile, lethal, survivable, and sustainable force across the entire spectrum of military operations. For the purpose of this monograph the focus is on two or three that ensure dominance of the FCS in the Joint Fight, deployability and lethality as

[75] Ibid., 3-1

well as joint interoperability.[76] Although joint interoperability is not identified in the Objective Force White Paper, it focuses on communication aspects of the system and allows the integration of the Joint Force with operations conducted by the FCS.

Deployability

The improved responsiveness the Army will gain through FCS equipped forces must be supported through an increased ability to deploy both through air and by sea in order to redefine operational maneuver. The Army Operations Manual FM 3-0 defines operational maneuver as "placing Army forces and resources at the critical place in time to achieve an operational advantage. It is complex, and often requires joint or multinational support. Deployments and intratheather movements are operational maneuver if they achieve a positional advantage and influence the outcome of a campaign or battle."[77] The key performance parameter (KPP) of transportability outlined in the Operational Requirement Document for the Future Combat System outlines how transportability of the FCS will increase the deployability of FCS equipped forces. Its transportability provides inter-theater options for strategic deployment and intra-theater options for operational maneuver in order to execute operations.[78] This capability provides flexibility for entry operations both permissive and non-permissive to counter threat anti-access strategies by using multiple austere entry points to bring in units.[79]

The ability to deploy FCS units by air is dependent on the continued dominance of the United States in air operations. Dominance of the air occurs in two distinct ways. First and the most recognizable are destroying enemy aircraft in the air and on the ground to prevent their use. This is the tactic used by the Germans in World War II in gaining command of the air prior to its

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[76] Headquarters, US Army Training and Doctrine Command, *Operational Requirements Document for the Future Combat System*, Ft. Knox, KY Change 3 14 April 2003 p 40

[77] Headquarters Department of the Army, *FM 3-0 Operations,* 4-4

[78] US Army Training and Doctrine Command, *Operational Requirements Document for the Future Combat System*, 44

[79] Ibid., 44

operations. It is also the typical action thought of when command of the air is discussed. However, the U.S. Air Force, Navy and Marine Corps has elevated command of the air to a new level not requiring physical destruction but only requiring psychological defeat. In the most recent action in Iraq, the Iraqi Air Force did not fly one sortie of fixed wing aircraft during the war. In fact, the enemy took extraordinary measures to hide their aircraft on the ground and in some cases buried them in the desert.[80] The United States dominated the air in this operation not through physical destruction but through the threat of physical destruction. The domination of the air demonstrated by the Air Force is not only domination of fixed wing assets but also of rotary wing assets.

The second way to dominate the air is through the air defense assets of the FCS equipped Unit of Action. The current force possesses a robust short-range air defense capability and theater ballistic missile (TBM) capability. These capabilities provide additional capability to aid in the domination of the air in an area of operations. The increased integration of the FCS with other services in the Joint Fight will increase the capability to the Army to contribute to the domination of the air. The ability to intercept and defeat TBM's is arguably the most important capability the Army brings to the Joint Fight, and prevents the enemy from using TBM's to support anti-access strategies.

Interoperability

The ability to leverage the assets of other services from the Joint Force in the Joint Fight begins with an increase in interoperability of Army ground forces, outlined in KPP 1 "Joint Interoperability" in the Operational Requirements Document for the Future Combat System. [81]

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[80] Blix Says Iraq War Illegal 6 August 2003 [CBS News Online]; available from http://www.cbsnews.com/stories/2003/08/08/iraq/main567410.shtml; Internet; accessed 31 January 2004

[81] US Army Training and Doctrine Command, *Operational Requirements Document for the Future Combat System*, 58

The endstate for the FCS is the ability to transmit and share information horizontally and vertically with the legacy force and other services that compose the Joint Force. As a full spectrum force, the FCS equipped UA is required to interoperate with Joint and U.S. Government agencies.[82]

The FCS equipped UA must be interoperable with a wide range of Joint and Legacy communications systems and networks. The importance of interoperability is evident in the Operational Requirements Document for the FCS, which list interoperability as number one of the seven key performance parameters.[83] Without the ability to apply the resources of each service in the Joint Fight, the FCS will be unable to turn tactical success into operational and strategic success as the Germans did with their panzer divisions in 1940 in France. The critical aspect of this interoperability requirement is accessing the data from these systems so it can then be fused into information and organized into knowledge components to allow the FCS leader to act first and finish decisively.[84] When called upon smaller FCS equipped units may have to meet and defeat a larger conventional enemy force. In order to increase the mass of the force on the ground the use of Joint Air forces is required.

The FCS must be tactically interoperable with current and future aircraft utilized by the U.S. Army, the U.S. Air Force, the U.S. Navy, the U.S. Marine Corps and interagency organizations operating in the area of operations. The FCS-equipped UA with a substantial increase in joint interoperability over the legacy force will be capable of closely coordinated air-ground combat operations. This capability will allow the smaller FCS equipped UA to engage larger forces and defeat them. The FCS equipped UA will also enjoy unprecedented

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[82] US Army Training and Doctrine Command, *Objective Force Operational and Organizational Plan Maneuver Unit of Action,* G-1

[83] US Army Training and Doctrine Command, *Operational Requirements Document for the Future Combat System,* 40

[84] US Army Training and Doctrine Command, *Objective Force Operational and Organizational Plan Maneuver Unit of Action,* G-1

reconnaissance assets from the strategic level to the tactical level across service lines because of increased interoperability. This will provide the UA numerous intelligence gathering systems as well as analytical tools that ensure the commander receives processed data that will enable him to act first and finish decisively.

The tactical exploitation system (TES) is a highly mobile, tailorable, scaleable, and modular intelligence pre-processing system capable of receiving, processing, and exploiting national and theater signals and imagery data and disseminating the resulting products to the commander in a timely manner.[85] The TES will be the national and theater signal intelligence (SIGINT) and imagery intelligence (IMINT) pre-processing system for the Corps and Echelon Above Corps (EAC) commander and staff.[86] The ability to dominate in reconnaissance is integral in ensuring successful employment of the FCS. Without successful reconnaissance the FCS equipped UA will not be able to see first, act first, or finish decisively. As a result the ability to integrate multiple reconnaissance assets from the national to the tactical level are imperative for success. Another system outlined in the interoperability annex of the Operational Requirements Document for the Future Combat System is the All Source Analysis System (ASAS). This as many of the other systems outlined in the interoperability annex is not new; however, what is new is the ability to integrate this capability to the lowest tactical level.

The ASAS is the primary IEW component of the ABCS from Battalion (BN) through EAC. It is a mobile, tactical deployable, computer-assisted (CI/HUMINT), processing analysis, fusion, dissemination, presentation and technical control system.[87] ASAS is a series of computer hardware, software, and associated secure communications systems that provide seamless multi-source intelligence fusion and analysis. It is the tool that allows the intelligence analysts to

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[85] US Army Training and Doctrine Command, *Operational Requirements Document for the Future Combat System*, H-4

[86] Ibid.

[87] Ibid., H-7

quickly collect record, analyze, and disseminate vast amounts of combat information and intelligence. After gathering information, concerning the enemy from available resources the UA Commander will then have at his disposal the capabilities of the Joint Force to begin engaging targets.

Lethality

The interoperability systems mentioned earlier deal with increasing reconnaissance assets to the commander and to a degree engaging those targets once identified with joint forces. Networked lethality KPP 3 states the FCS must be capable of joint networked lethal and non-lethal effects that achieve overmatch out of contact and in contact, at tactical standoff and in close combat[88] to defeat the enemy. The FCS will have access to Army and joint fire delivery systems from sources external to the UA which will provide extended range, networked, precision or volume fires on demand in support of tactical maneuver with the ability to also employ close air support (CAS) on demand.[89] The ability to achieve overmatch through line of sight (LOS), beyond line of sight (BLOS), and non-line of sight (NLOS) is key for the FCS equipped UA success. The capability to achieve overmatch occurs through the networked lethal and non-lethal fires of the Joint Force. The full integration of these networked systems with maneuver allows suppression and destruction of enemy forces and systems with greater precision.[90]

The ability to engage targets with multiple joint fire assets begins with the Advanced Field Artillery Tactical Data System (AFATDS). It is an integrated fire support C2 system that processes fire mission and other related information to coordinate and optimize the use of all fire support assets, including mortars, field artillery, cannon, missile, attack helicopters, air support, and naval gunfire. Integration of the lethal fires of the Joint Force into the AFATDS, system

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[88] Ibid., 48

[89] US Army Training and Doctrine Command, *Objective Force Operational and Organizational Plan Maneuver Unit of Action*, 6-15

[90] Ibid.

allows commanders of the FCS equipped UA to maximize destruction of enemy forces throughout the JOA. Army forces will no longer be limited to Army assets to destroy enemy forces but will be better prepared to integrate other lethal fire assets of the Joint Force through the integration of AFATDS to the lowest level and to every service.

These are just a few of the systems that provide the FCS with the ability to dominate in land operations with the increased integration of the Joint Force. In order for the FCS to redefine operational maneuver the integration of the Joint Force and success in the Joint Fight is imperative.

CHAPTER FOUR

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

The FCS is the panzer of today's Army. The capabilities it provides the Army, once preconditions are met, allow the Army to redefine operational maneuver. However, failure to set the conditions will result in failure just as the panzer divisions during Operation Barbarossa failed to achieve strategic success although they were successful tactically. *Army Field Manual 3-0* defines operational maneuver as "placing Army forces and resources at the critical place in time to achieve an operational advantage. It is complex, and often requires joint or multinational support. Deployments and intratheather movements are operational maneuver if they achieve a positional advantage and influence the outcome of a campaign or battle."[91] The successful accomplishment of the two sets of preconditions will allow FCS equipped units to gain a positional advantage and thus redefine operational maneuver. First, the three prerequisites of suitable terrain, surprise, and concentration or mass must be satisfied. These prerequisites are the

[91] Department of the Army, *FM 3-0 Operations,* 4-4

first step in determining to employ the FCS and if employment will be successful. Once employed the Joint Force must be successful in support of the FCS in order to allow it to not only redefine operational maneuver, but also be successful at the operational and strategic level of war. Success in these two preconditions will allow the FCS to be the major part of the revolution in military affairs (RMA) that will redefine operational maneuver. A RMA requires the assembly of a complex mix of tactical, organizational, doctrinal, and technological innovations in order to implement a new conceptual approach to warfare according to Knox and Murray in the *Dynamics of Military Revolution 1300-2050.*[92] The FCS as part of the UA provides the components defined by Knox and Murray; however, the prerequisites as well as the success of the Joint Force are dependent on each other and success in one area does not necessarily mean success in the entire operation.

Guderian identified the three prerequisites suitable terrain, surprise, and concentration or mass as necessary to ensure success in panzer attacks. The decision to attack through the Ardennes did not support suitable terrain; however, it did support the element of surprise and mass. As we look forward to the employment of the FCS, we will seek to pick areas that adversaries do not suspect just as the Germans did for the invasion of France. Our suitable terrain will consist of austere landing strips removed from enemy forces that allow us to maximize the capabilities of the FCS. Once the capability to employ the FCS anywhere in a contingency area is known, potential adversaries will be denied the ability to employ anti-access strategies, because they cannot defend everywhere without risks, which is what the French did. The French chose to defend the entire frontier and the soldiers they chose to defend the area near the Ardennes were poorly equipped reservists without adequate air defenses.[93]

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[92] MacGregor Knox and Williamson Murray *The Dynamics of Military Revolution 1300-2050* (Cambridge: Cambridge University Press.2001)p 12

[93] Addington, *The Patterns of War Since the Eighteenth Century*, 206

Surprise the next prerequisite is secure with the capabilities offered by the FCS. The Germans achieved surprise by attacking through terrain thought to be impassable to the maneuver force used. The ability to deploy to austere environments through either inter- or intra-theater lift as well as sealift denies potential adversaries with the ability to determine where US forces will stage while also providing him a dilemma similar to the French in 1940. There will be no ground in a potential contingency area inaccessible to ground maneuver forces with the capability to deploy to austere environments, unless the enemy decides to operate from mountainous terrain. The need for a permissive environment which currently restricts the ability of the force will be removed with the fielding of the FCS and the ability to deploy anywhere in a contingency area. Most notably austere environments will ensure surprise is maintained. Finally, mass is achievable not because of systems on the ground but the effects available to the FCS with the inclusion of capabilities from the Joint Force. During the breakthrough in France, the Germans deployed seventy percent of their armor forces and over one thousand aircraft on May 13, 1940 around Sedan.[94] The Germans were able to mass forces on the ground and in the air to overwhelm the defenders holding the line. With the deployment of the FCS, the Army will achieve mass not through numbers of systems on the ground but through the effects of the Joint Force to include lethal and non-lethal fires. The C4ISR network enables every element within the formation to generate combat power and contribute to the fight to achieve mass.[95] As we look at these prerequisites identified by Guderian as requirements for successful panzer attacks there is one recurring theme not present when he developed them. That theme is success of the Joint Force. In each of the previously mentioned prerequisites, the success of the Joint Force allows the FCS to be successful. The Joint Force will deploy the FCS to suitable terrain, which will allow it to maintain surprise, and provides it with the capability to mass effects. Although

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[94] Doughty, *The Breaking Point Sedan and the Fall of France, 1940,* 135

[95] US Army Training and Doctrine Command, *Objective Force Operational and Organizational Plan Maneuver Unit of Action,* 6-14

Guderian identified the tank alone could not be successful without the support of the supporting arms or the Joint Force, the supporting arms were not considered necessary in identifying the prerequisites. Neither the Luftwaffe nor the Navy was instrumental in the Germans deciding to attack through the Ardennes. However, in the warfare that the United States will undertake in the future the Joint Force will be involved because without them the FCS cannot be successful nor redefine operational maneuver.

As we look at the supporting, arms identified in this monograph recon, air, artillery and communications the prevalence of the Joint Force is identifiable. Continued dominance in these areas ensures that once employed, the FCS will be successful tactically as well as operationally and strategically. Some of the systems mentioned such as the TEW and ASAS allow integration of recon assets across service lines providing FCS equipped units with a multitude of intelligence sources down to the tactical level. Integrated recon across service lines will allow the FCS equipped UA to see first, understand first and act decisively against potential adversaries. Although the Germans were restricted from possessing an air force under the Versailles Treaty, it did not prevent the development of a comprehensive air doctrine focused on the tactical role of aircraft in supporting ground forces.[96] The contribution of the Luftwaffe to the success of the panzer formations attacking through the Ardennes is well documented. Robert Doughty discusses the affect the attacks had on the defending French forces in his book the *Breaking Point Sedan and the fall of France, 1940.* The Luftwaffe was integral in the success of the panzer attack through the Ardennes and allowed the tactical success of the panzer to translate into operational and strategic success. If the FCS is to be successful in the tactical fight as well as redefining, operational maneuver, the Joint Air Forces must be successful. They will set the conditions for employment through inter- and intra-theater lift by destroying enemy air forces. They will provide the additional firepower needed to achieve mass on the battlefield as well as

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[96] Corum, *The Roots of Blitzkrieg,* 167

continuing the role of strategic bombing. Even though the Germans held an advantage over the allies in aircraft prior to the Invasion of France, it was not the only one.[97]

Finally, the Germans also held an advantage in communication over the allies during the invasion of France.[98] The radio was the prefect instrument to support the fast-paced maneuver of the panzer formations. It allowed the Germans to quickly disseminate orders and guidance as well as communicate effectively with the supporting arms. The C4ISR of the FCS is also the perfect system to support the integration of capabilities from the Joint Force. C4ISR will provide FCS equipped units with the capability to see first, act first and finish decisively. In addition, without it, the FCS will be unable to integrate effectively with the Joint Force, because it will lack interoperability.

The Germans were successful in the invasion of France and were able to use a tactical system to gain operational and strategic success. However, the attack through the Ardennes was risky. If the Allies identified the main German attack early, if allied bombers caught the German columns moving through the Ardennes, or if the French managed to hold along the Meuse long enough for reinforcements to arrive, the plan may have resulted in failure instead of victory.[99] The execution of this plan was possible because of the decentralized nature of German operations and the belief that leaders would seize the initiative to exploit fleeting opportunities.[100] In short, leaders of the FCS force will have to exemplify audacity in order to take advantage of the opportunities the FCS offers. Risk will be necessary but again the benefits to the Combatant Commander and Secretary of Defense will be immeasurable. Potential enemies of the United States will be unable to seek sanctuary from American land forces because they will no longer be tied to permissive environments or standard APOD's and SPOD's. [101]

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[97] Doughty, *The Breaking Point Sedan and the Fall of France, 1940,* 3
[98] Ibid.
[99] Ibid., 26
[100] Ibid., 31
[101] Quadrennial Defense Review 2001, 31

The FCS can redefine operational maneuver, however it requires the success of the Joint Force in setting the conditions as well as the assets of the Joint Force to deploy whether through air or sea. Army Field Manual 3-0 defines operational maneuver as "placing Army forces and resources at the critical place in time to achieve an operational advantage. It is complex, and often requires joint or multinational support. Deployments and intratheather movements are operational maneuver if they achieve a positional advantage and influence the outcome of a campaign or battle."[102] In the offense, the UA has the inherent capability to gain a positional advantage by ground and vertical maneuver to tactical and operational depth.[103] This enables both air and ground envelopments during ground maneuver.[104] This capability allows the FCS to redefine operational maneuver with support of the joint force.

RECOMMENDATIONS

The ability to redefine operational maneuver with the FCS exists however, it requires the support of the Joint Force to be successful in not only the deployment phase but also setting conditions for deployment as discussed earlier. The Army has identified what it needs to allow rapid deployment and integration with other elements of the Joint Force. However, the Army lacks the capability to employ the FCS without Joint Support. Without support of the Joint Force the Army will possess a system with a greater force projection capability but the inability to employ it. The FCS will alleviate the current restriction on deploying mechanized forces, which is weight. However, the decrease in weight of the force may not allow the Army to redefine operational maneuver because of the capability of the Air Force to deploy Army forces.

As the Army continues to develop the FCS and concepts for its deployment, the capability it offers the President and Secretary of Defense to protect national interest should be a

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[102] Department of the Army, *FM 3-0 Operations,* 4-4

[103] US Army Training and Doctrine Command, *Objective Force Operational and Organizational Plan Maneuver Unit of Action,* 4-2

[104] Ibid.

major conversation point. In general, deep interior deployments favor airlift while littoral deployments favor sealift as would be expected. The FCS can provide the capability to conduct deep interior deployments with lethal mechanized forces in a contingency area a capability offered by no other service. This capability is of particular use when either an airfield or port is close to the area of operations or the political climate limits options as referred to earlier during Operation Iraqi Freedom where US ground forces could not operate but air forces were allowed to traverse airspace over Turkey. If a similar situation were to arise in the future, an FCS equipped force would allow the combat commander to open a second front with lethal mechanized forces instead of the airborne infantry used in this case.

There are two primary airframes used for air deployment the C-17 and C-130J; both are able to use austere airfields. The C-17 can take off and land on runways as short as 3,000 feet and only 90 feet wide.[105] The Air Force is currently planning to field 120 C-17s, with the last one being delivered in November 2004.[106] The C130J also provides the capability to use austere landing areas but normally operates in the intra theater realm while the C-17 offers both intra- and inter-theater capability. Approximately 168 C-130J/J-30s are planned for the inventory, to date the Air Force has 32 C-130Js.[107] However the increasing requirements on the military around the world and the available airframes limits the support available to allow the FCS to redefine operational maneuver or deploy in sufficient numbers to a contingency area. The ultimate measure of airlift effectiveness is the ability to rapidly project and sustain an effective combat force close to a potential battle area.[108] The currently projected airframes to support this

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[105] C-17 Globemaster III [Fact Sheet]; available from http://www.af.mil/factsheet/factsheet.asp?fsID=86; Internet; accessed 26 January 2004.

[106] Ibid.

[107] C-130J Hercules [Fact Sheet]; available from http://www.af.mil/factsheets/factsheet.asp?fsID=92; Internet; accessed 26 January 2004.

[108] C-17 Globemaster III [Fact Sheet]; available from http://www.af.mil/factsheets/factsheet.asp?fsID=86; Internet; accessed 26 January 2004.

capability may not provide effective airlift because they are limited in the ability to both conduct airlift operations and support other ongoing operations.

The aerospace expeditionary force (AEF) is an organization used by the Air Force to provide a rapid deployment capability of air power to Combatant Commanders. AEFs provide Joint Force Commanders with a ready and complete aerospace force package that can be tailored to meet the spectrum of contingencies-ensuring situational awareness, freedom from attack, and freedom to maneuver and freedom to attack.[109] The AEF can provide air superiority while striking some 200 targets per day.[110] As U.S. joint operations increase and communication across service lines increases, the inclusion of FCS units in an AEF will provide a force capable to respond and operate in contingency areas across the full spectrum of operations and deserves further research. Combatant commanders should not be limited to only air power to influence a contingency area until maneuver forces arrive by sea. Additionally there may arise contingencies that do not allow employment of maneuver forces by sea and without a force to address this possibility US interest may suffer. The formation of a new organization to take advantage of the FCS is a possible solution to insure joint interoperability.

The Marines and the Navy currently employ the Expeditionary Strike Group (ESG), which is composed of both Marine, and Naval forces which provide Combatant Commanders various options to include ground forces and air forces to deal with contingencies. The ESG is a revamped amphibious ready group with the ability to disperse strike capabilities across a greater range of the force, increasing the striking power in the amphibious ready group.[111] The ESG is made up of amphibious ships, cruisers, destroyers and submarines and is a departure from the typical carrier battle group/amphibious ready group structure. An expeditionary strike group

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[109] America's Air Force Vision 2020; available from http://www.af.mil/vision; Internet; accessed 22 August 2003.

[110] Ibid.

[111] Expeditionary Strike Group; available from http://www.globesecurity.org/military/agency/navy/esg.htm; Internet: accessed 5 March 2004.

could include amphibious ships, a destroyer, cruiser, frigate, attack submarine, and a P-3C Orion land-based aircraft. The new mix, which deploys in place of the amphibious ready group, allows Navy and Marine Corps forces to launch Marines and landing craft as warships and submarines strike inland targets with missiles and shells.[112]

The formation of a joint force centered on the capabilities of the AEF and UA will provide Combatant Commander's increased capabilities to deal with contingencies in their respective area of operations. Although Transportation Command (TRANSCOM) owns inter-theater assets this proposed, new force will need adequate support from inter-theater assets to allow deployment of the force without jeopardizing operations in other parts of the world. A study conducted by the United States General Accounting Office (GAO) concerning deployment of Stryker Brigades using inter-theater lift stated the requirement to lift a Stryker Brigade in the proposed 96-hour time limit would require up to 30% of the current inter-theater lift currently available and then could only be accomplished in five days.[113] The proposed new force known as the Air Ground Expeditionary Force (AGEF) will provide Combatant Commanders with an air and ground capability for operations in their respective area of operations. This force will establish habitual relationships between AEF's and UA's identified as early deploying units. As described earlier the AEF provides a strike capability but in order to take full advantage of the rapid deployability of the FCS equipped UA inter-theater assets are required. The expansion of the AEF to possess its own assigned inter-theater lift apart from TRANSCOM will provide it with the capability to deploy FCS units while not adversely affecting air operations in other areas of operations that require inter-theater lift. This new force will provide combatant commanders with a unique capability not offered by other services in that they will receive a self-contained force capable of both air and ground operations using lethal mechanized forces centered on the FCS.

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[112] Ibid.

[113] United States General Accounting Office. *"Military Transformation: Realistic Deployment Timelines Needed for Army Stryker Brigades"* (Washington, D.C.: GPO 2003), p. 2

The feasibility of a new joint force to maximize the capabilities of both the FCS UA and the AEF deserves further research.

Operational maneuver requires gaining a positional advantage over enemy forces, the ability to gain this advantage with mechanized forces through the depth of the battlespace is a new capability offered by the FCS. The Army has identified the requirements needed to allow the exploitation of this capability; however, the Army is limited in realizing the full benefit of this capability without support of the Joint Force.

In order for the Army to increase, its expeditionary capability as stated by the Chief of Staff of the Army it must possess the capability to deploy to contingency areas and the proposed force combining the capability of the AEF and the UA will make this possible. This will provide Combatant Commander's with not only air, but also ground power in a timely fashion to deal with potential contingences.

BIBLIOGRAPHY

Books

Addington, Larry H. "*The Patterns of War Since the Eighteenth Century*" (Bloomington: Indiana University Press, 1994)

Bekker, Cajus "*The Luftwaffe War Diaries*" (New York: Da Capo Press. 1994)

Bellamy, Christopher "*The Evolution of Modern Warfare, Theory and Practice*" (New York: Routledge, 1990)

Bond, Brian "*The Pursuit of Victory*" (New York: Oxford University Press, 1996)

Cooper, Matthew "*The German Army 1933-1945*" (New York: Bonanza Books. 1984)

Condell, Bruce and David T. Zabeki, "*On the German Art of War Truppenfuhrung*" (Boulder: Lynne Rienner Publications, 2001)

Corum, James S. "*The Roots of Blitzkrieg,*" (Lawrence Kansas: University Press of Kansas, 1992)

Crevald, Martin van with Steven L. Canby and Kenneth S. Brower "*Airpower and Maneuver Warfare*" (Maxwell Air Force Base: Air University Press. 1994)

Deighton, Len "*Blitzkrieg From the Rise of Hitler to the Fall of Dunkirk*" (New York: Ballantine Books. 1979)

Doughty, Robert A."*The Seeds of Disaster, The Development of French Army Doctrine 1919-1939,*" (Hamden: The Shoe String Press, 1985)

Doughty, Robert Allan "*The Breaking Point, Sedan and the Fall of France 1940,*" (Hamden: Archon Books, 1990)

Fuller, J.F.C. "*A Military History of the Western World*" (New York: Funk & Wagnalls Company, Inc. 1956)

Grange, David L. BG (R) et al., "*Air Mech Strike Asymmetric Maneuver Warfare for the 21st Century*" 2nd Edition (Paducah: Turner Publishing Company, 2002)

Guderian, Heinz Major-General "*Achtung-Panzer!*" (London: Arms and Armour Press, 1992)

House, Jonathan M. "*Combined Arms Warfare in the Twentieth Century*" (Lawrence: University of Kansas Press. 2001)

Huntington, Samuel P. "*The Clash of Civilizations and the Remaking of World Order*" (New York: Simon & Schuster, 1996)

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

Mitksche, Ferdinand Otto Major "*Attack A Study of Blitzkrieg Tactics*"(New York: Random House. 1942)

Murray, Williamson and Allan R. Millet, ed "*Military Innovation in the Interwar Period*" (New York: Cambridge University Press, 1988)

Naveh, Shimon "*In Pursuit of Military Excellence The Evolution of Operational Theory*" (Portland: Frank Cass Publishers, 1997)

Government and Military Publications

Department of Defense. *Joint Vision 2020*. By Chairman of the Joint Chiefs of Staff, Washington, D.C.: US Government Printing Office, 2000.

Headquarters Department of the Army. *FM 1 The Army* Washington, D.C., 2001

Headquarters Department of the Army. *FM 3-0 Operations* Washington, D.C. 2001

Headquarters, US Army Training and Doctrine Command, TRADOC Pamphlet 525-3-92 *Objective Force Unit of Employment Concept* Washington, D.C. 2003

Headquarters, US Army Training and Doctrine Command, TRADOC Pamphlet 525-3-90 *Objective Force Operational and Organizational Plan Maneuver Unit of Action* Washington, D.C. 2003

Headquarters, US Army Training and Doctrine Command, TRAC –F-TR-03-007 *Future Combat Systems Mission Needs Analysis Final Report* Washington, D.C. 2003

Headquarters, US Army Training and Doctrine Command, *Operational Requirements Document for the Future Combat Systems* Washington, D.C. 2003

Headquarters, US Army Training and Doctrine Command, TRADOC Pamphlet 525-3-35 *Force Projection of the Transforming Army* Washington, D.C. 2003

Quadrennial Defense Review 2001. Washington, D.C., 2001

The National Security Strategy of the United States of America. Washington, D.C., 2002

United States Army White Paper "*Concepts for the Objective Force*" (Department of the Army, 2000)

United States General Accounting Office. *"Military Transformation: Realistic Deployment Timelines Needed for Army Stryker Brigades"* Washington, D.C. 2003

Internet

America's Air Force Vision 2020; available from http://www.af.mil/vision; Internet; accessed 22 August 2003.

Blix Says Iraq War Illegal 6 August 2003 [CBS News Online]; available from http://www.cbsnews.com/stories/2003/08/08/iraq/main567410.shtml; Internet; accessed 31 January 2004

C-17 Globemaster III [Fact Sheet]; available from http://www.af.mil/factsheet.asp?fsID=86; Internet; accessed 26 January 2004.

C-130J Hercules [Fact Sheet]; available from http://www.af.mil/factsheets/factsheet.asp?fsID=92; Internet; accessed 26 January 2004.

C-17 Globemaster III [Fact Sheet]; available from http://www.af.mil/factsheets/factsheet.asp?fsID=86; Internet; accessed 26 January 2004.

Encarta Encyclopedia Online available from http://encarta.msn.com/encyclopedia_701610456_2/Manhattan_Project.html#p60; Internet; accessed 24 January 2004.

Expeditionary Strike Group; available from http://www.globalsecurity.org/military/agency/navy/esg.htm; Internet: accessed 5 March 2004.

Gerry J. Gilmore, U.S., Turkey Announce Operation Iraqi Freedom Support Agreement [News Article] (American Forces Press Service April 2, 2003); available from http://www.defenselink.mil/news/Apr2003/n04022003_200304026.html; Internet; accessed 28 September 2003.