USAWC STRATEGY RESEARCH PROJECT

Collective training and fielding opportunities for the Objective Force Maneuver Systems (FCS and Comanche) at the Unit of Action (UA) level in a Unit Manning/Unit Replacement Personnel System

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ABSTRACT

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The introduction of Objective Force formations, beginning with the first Unit of Action, will fundamentally change existing organizational structures, training requirements and operational constructs for the U.S. Army. At no point in modern history has the Army introduced such significant changes in both hardware and operations simultaneously. To support this change, the Army leadership must decide, early in the transformation process, on a plan for fielding and training Units of Action that leverages emerging training technologies, establishes standardization across the Army, minimizes personnel turbulence and is sustainable over an extended period. The challenges of introducing the Objective Force formations will be made more complex by near simultaneous conversion of the U.S. Army from the current individual replacement system to a unit manning/unit rotation system. As we move into the complex environment of transformation, the Officer education System (OES) will require review to insure it produces officers capable of performing within the new organizational constructs.

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PREFACE

The topic of this research paper is both timely and challenging. Very little material exists in the public domain pertaining to the subject of collective fielding and training, nor has the Army captured significant lessons learned from previous fielding experiences. The bulk of material available comes from local briefings and AARs located at various training centers around the country. I would like to thank the numerous friends and colleagues who have provided material and support for this SRP. I would like to make particular note of the following; MAJ Steve Beltson, S3 21st Cavalry Brigade (Air Combat) for the tremendous amount of material he provided on AH-64D SSF/UFTP and integration of advanced simulation technologies into collective training. Mr. Fred Wham, from the CALL, for his tireless efforts in researching critical archival material on previous systems fieldings. Mr. Gus Fabian from the SBCT fielding team, Ft. Lewis, Washington, for both SBCT material provided, and coordination with other members of the SBCT fielding team. The Staff of FDV, G8 HQDA for extensive material on Comanche fielding proposals, and contacts within the Pentagon. TSM Comanche for support and material on Comanche fielding. The USAAVNC staff, in particular COL D. Mark Ferrell, DOTDS for current material on Aviation center strategies. MAJ Jerry Schulz from Cavalry Doctrine, Fort Knox Directorate of Training, Doctrine and Combat Development for several key briefings and papers on both M1 and M2/3 fieldings. COL(Ret) Reed C. Kowalczyk, for both key material he provided to this project and years of mentorship and guidance as both a commander and friend. I would especially like to thank Dr. Lenny Wong, USAWC for his insights into the proposed Unit Manning/Unit Replacement System. My several good friends who have provided editorial support for this project; COL Bob Nossov, COL George Bilafer and COL(Ret) Mike Hackerson. Many observations relating to fielding and training come from my personal experiences over the past 22 years, during which time I have been directly associated with development and execution of several AH-64A/D fieldings, OH-58D(KW) fieldings and M1/M2/3 fieldings, as well as serving as the Comanche SSO in FDV, G8 HQDA. Most importantly my wife Robbie B. Courts, and children who endured the hardships afflicted on us this year, and still provided an environment for me to work on this project.

LIST OF ILLUSTRATIONS

Collective training and fielding opportunities for the Objective Force Maneuver systems (FCS and Comanche) at the Unit of Action (UA) level in a Unit Manning/Unit Replacement Personnel System

The introduction of Objective Force formations, beginning with the first Unit of Action (UA), will fundamentally change existing organizational structures, training requirements, personnel systems and operational constructs for the U.S. Army. At no point in modern history has the U.S. Army introduced such significant changes in hardware, operational construct and personnel management simultaneously. The UA will incorporate multiple new types of units, embrace a new 2-level maintenance program, transition to net-centric operations, train to operate as an independent formation and introduce unit manning and unit rotation personnel systems. The concept of Objective Force Operations represents a core change in the Army's vision for not only combat operations, but how we man, train and equip the force (see FIGURE 1).[1]

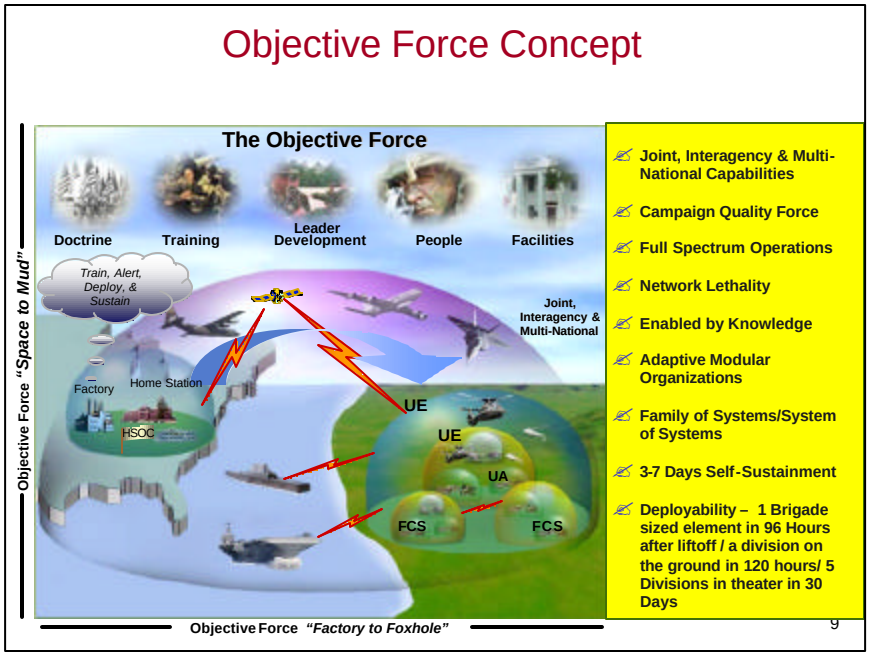

FIGURE 1 OBJECTIVE FORCE CONCEPT

Transformation represents far more than the conversion of an existing Brigade Combat Team to a new set of equipment. To support change of this scale, the Army leadership must decide, early in the transformation process, on a plan for fielding, and training Units of Action that leverages emerging training technologies, establishes standardization across the Army, minimizes personnel turbulence and is sustainable over an extended period. Preceding the introduction of the Unit of Action as the Army's primary maneuver formation, Army Leadership has committed to converting the personnel system from the current individual replacement program to a system based on Unit Manning and Unit Rotations. This new system represents a fundamental change in how the Army does business, and establishes the personnel element of Transformation. This new personnel system must be considered as an integral component of Objective Force fielding when reviewing potential fielding programs.

This paper examines how Army leaders might transform the collective fielding and training process in support of the Objective Force to deal effectively with the unique requirements that new technology, organizational structures, and Tactics, Techniques and Procedures (TTPs) will present. This paper will review previous examples of major fielding initiatives under taken by the Army: M1 series, M2/3, AH-64A/D, OH-58D (KW) and Stryker. It looks at the lessons learned from Single Station Fielding (SSF), Unit Set Fielding (USF) utilizing the New Equipment Training Team (NETT) approach, split station fielding as applied to the OH-58D (KW) Heavy Cavalry Squadrons, the methodology employed with the Stryker Brigades, and the hybrid fielding system being developed by the United States Army Aviation Center for Comanche fielding. This paper will address emerging training technologies that will be available in support of UA systems fieldings. This paper will consider the implications of a unit manning/unit replacement system in the context of how this may be integrated into potential fielding/training programs. Additionally this paper will offer possible changes to the professional education system necessary to support transformation. Finally, this paper offers a possible course of action for the fielding and training of Units of Action with a focus on the maneuver elements.

HISTORICAL EXAMPLES, LESSONS, FROM FIELDING OF MANEUVER SYSTEMS

The U.S. Army under took a major modernization program during the 1970s, resulting in the fielding of 'The Big 5" systems during the 1980s, the M1 Abrams MBT, M2/3 Bradley Infantry Fighting Vehicle, AH-64A Apache Advanced Attack helicopter, UH-60A Blackhawk Utility Helicopter, and the Patriot Air Defense Missile System. This period represents the last major introduction of new capital systems made by the United States Army. Several different

approaches were undertaken by the Army to field and train organizations being equipped with these new systems. Most significantly, we saw two distinctly different approaches to the fielding and training challenge, the Unit Set Fielding (USF) program employing New Equipment Training Teams (NETT), and the Single Station Fielding Program (SSF). During the 1980s, the ground maneuver forces employed the USF approach to fielding, while the aviation community employed the SSF program to the AH-64A Apache. During the 1990s the Army employed a hybrid program for the OH-58D (KW) Divisional Cavalry Squadrons by conducting SSF for the aviation components of the organization while the remainder of the organization remained at home-station, to be reunited upon completion of the SSF portion of training. When the AH-64D Longbow Apache was introduced beginning in 1998, the U.S. Army continued to employ the SSF program that had proved successful with the AH-64A. Today the new Stryker Brigades are undergoing a form of the SSF model at Ft. Lewis, Washington, although a recent Army decision has Stryker Brigade #4 and later fielding using a USF model employing a NETT at home-station. For the past 20 plus years, the U.S. Army has been continuously engaged in the fielding and training of maneuver organizations, utilizing a variety of models. Arguably, each of these programs has served the Army and Nation well. As the Army moves towards transformation and fielding of an Objective Force, it is important to review previous programs and learn lessons from success and failures before the next generations of systems hit the field.

FIELDING OF THE M1 SERIES MAIN BATTLE TANK

The introduction of the M1 series of Main Battle Tanks into the U.S. Army inventory in the 1980s was a significant improvement in both mobility and firepower for the Army's armored forces. The M1 was the first turbine engine equipped land combat system in the U.S. Army, and provided the tank crew with its first true fire on the move capability. The Army decided to field the M1 series, and continues to employ, a Unit Set Fielding Program relying on New Equipment Training Teams (NETT) deploying to home-station for the respective organizations and conducting both the fielding and collective training of the unit. A program begun in the early 1980s continues today with the fielding of the M1A2 SEP. The M1A2 SEP System Training Plan (STRAP) outlines the current philosophy regarding NETT operations for the M1 Abrams program. Army Material Command in coordination with PM Abrams serves as proponent for the M1A2 SEP NET. The training strategy for the M1A2 SEP involved Instructor and Key Personnel Training (I&KPT) training four months prior to the Operational Test and Evaluation. From the Key personnel a NETT formed to conduct the individual and unit level training. The strategy establishes separate programs for fielding organizations and establishing institutional training

for individuals. A key aspect of the training strategy was the focus on simulation and distance learning as integral components of the training program. One of the lessons learned from previous fielding was the requirement to program software upgrades for training devices (TADDS) parallel to actual vehicles.[2] Lessons learned in both the ground and air community related to simulation software obsolescence creating useless training devices.

FIELDING OF THE M2/M3 BRADLEY FIGHTING VEHICLE

A parallel program to the M1 was the M2/M3 Bradley Infantry and Cavalry Fighting Vehicles. Designed to complement the M1 series, the M2/3 series fielded, during the same timeframe as the M1, to Infantry and Cavalry organizations utilizing the same Unit Set Fielding model with New Equipment Training Teams. The M2/3 A3 STRAP highlights the similarities in philosophy and program between the M1 and M2 communities. AMC and PM Bradley are overall responsible for the M2/3A3 NETT, and like the M1 and I&KPT was conducted prior to OT&E in preparation for NETT operations. The NETT provided initial operator, maintainer and tactical training to fielding units, while the institution assumed responsibility for follow-on training of new personnel. Like the M1 series, the M2/3 program relies heavily on simulation and with the A3 variant has a high reliance on an Interactive Multimedia Instructional (IMI) Training Package as an integral component of the NET process.[3]

FIELDING OF THE AH-64A/D APACHE

As Armor and Infantry organizations were fielding M1 and M2/3 series vehicles, Army Aviation was preparing to field both the AH-64A Apache Advanced Attack Helicopter, and the UH-60A Blackhawk Utility Helicopter. The Blackhawk replaced UH-1H Iroquois utilizing a similar program as the ground forces, a USF with a NETT. Crews went to Ft. Eustis and Ft. Rucker to receive individual level maintenance and operator training and then returned to home-station where a NETT sponsored by the Program Manager conducted the fielding to the organization. The AH-64 Apache fielding was and remains today a unique program within the Army.

Apache units, both those converting from the AH-1S Cobra and forming new, all went through a program called Single Station Fielding. Individual operator and maintenance training, like with the UH-60, was conducted at both Ft. Eustis and Ft. Rucker, there the similarities stopped. Army and Aviation leadership felt that the AH-64 represented such a significant departure from the AH-1S that USF with a NETT was insufficient to address the fundamental doctrinal and operational changes that needed to be trained within the organization. The AH-

64A introduced a level of complexity and operational capability into attack helicopter organizations that exceeded the scope of existing units to inculcate at home-station, even with a NETT. The Apache program also introduced the first true family of simulators, with the Combat Mission Simulator (CMS) as a regionally located full-motion, enhanced visual crew-training device, the Combat Weapons Emergency Procedures Trainer (CEWPT) serving as a non-moving procedural training device located with units not co-located with a CMS. The final simulation device available to the aircrews was the TADS Selected Task Trainer (TSTT) a floor mounted computer driven switchology trainer designed to train the co-pilot station, fielded to the battalion level. Unlike the previously discussed systems, new AH-64A units formed from scratch in addition to converting already fielded AH-1S units. To satisfy the emerging requirements, Army leadership established a permanent organization at Ft. Hood, Texas to field the AH-64A units.

In 1984, the Apache Task Force was established as an element of the 6th Cavalry Brigade (Air Combat) at Ft. Hood, Texas. In 1985 the Task Force was re-designated the Apache training Brigade with a mission to receive, equip, train, evaluate, and deploy all of the Army's non-Fort Hood Attack Helicopter Battalions receiving the Apache helicopter.[4] This organization has undergone several re-designations from the Combat Aviation Training Brigade to the present 21st Cavalry Brigade (Air Combat); however, the mission remains the same. Unique with the SSF model, units formed at a training facility way from home-station, families moved to Ft. Hood, and the units underwent a program called the Unit Fielding and Training Program (UFTP). The fielding organization was declared C5 for reporting purposes and went through a yearlong collective training program designed to produce a C1 attack helicopter battalion. The cadre conducted a program to train individual and collective skills, both air and ground. The battalion staff received extensive training as a battle staff. A series of field, command post, and gunnery exercises culminated in a certification EXEVAL for the fielding unit. Upon successful completion of the EXEVAL, the unit was certified and deployed to its home-station as a “go to war” battalion. Today, existing AH-64A units participate in a similar but slightly shorter program as they convert to AH-64D Longbow units. (see Figure 2)[5] Much like the AH-64A, the AH-64D relies on simulation training extensively. The Longbow program moved away from the regionally fixed CMS and has adopted a floor based; motion based Longbow Crew Trainer (LCT) fielded to the battalion level, along with highly developed PC compatible software emulators to allow crews to train on aircraft systems from any PC.

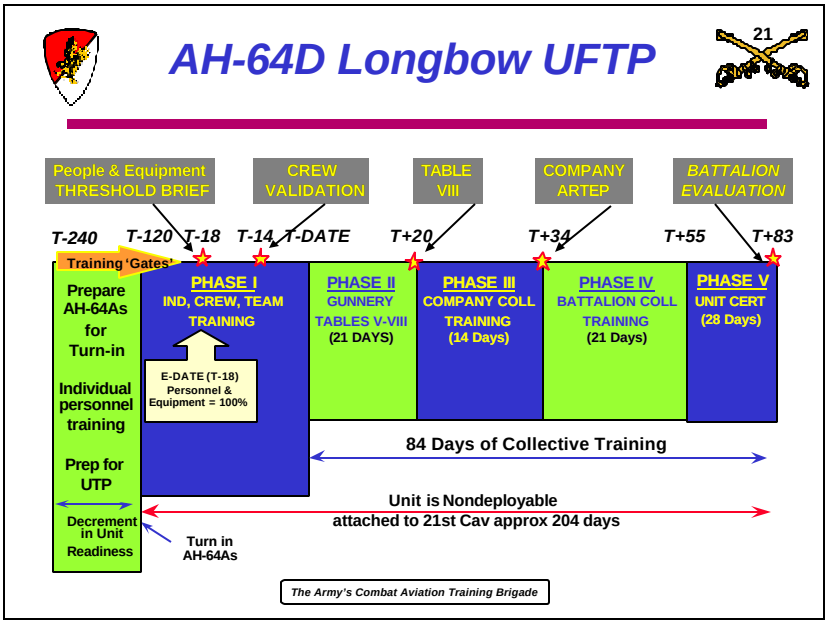

FIGURE 2. 21ST CAV BRIGADE UFTP MODEL

FIELDING OF THE OH-58D (KIOWA WARRIOR)

Army Aviation continued with the SSF fielding concept as it introduced the OH58D (KW) to the field. Beginning in 1996, the OH-58D (KW) was fielded as a single aircraft replacement for the AH-1S and OH-58A/C in the Army's divisional cavalry squadrons. Like the AH-64 SSF program, aircrews and maintenance personnel conducted individual training at Ft. Eustis and Ft. Rucker. Upon completion of individual level training, units deployed to Ft. Hood and the 21st Cavalry brigade for the UFTP. The significant difference between the AH-64 and OH-58D (KW) training models involved the organic ground troops of the divisional cavalry squadrons. The Squadron HQs and the ground troops remained at home-station while the air troops conducted the UFTP at Ft. Hood. The Squadron and ground troop HQs were integrated into pre-certification and certification EXEVALS as part of the program. Upon successful completion of the certification EXEVAL, the air troops were re-deployed to home-station and integrated back into the squadron. Of note, the OH-58D (KW) program has never developed a full-motion simulator like the Apache program, and has only recently introduced compliant procedural trainers to the program, reflecting the Army's reluctance to commit to the long term with this aircraft, originally intended as a stopgap to the Comanche.

FIELDING OF STRYKER BRIGADES

Today the U.S. Army is involved in fielding six Stryker Brigades (SBCT) as the interim force, bridging the technology and doctrinal gap between the legacy and Objective Force. Stryker Brigade Combat Teams (SBCT) provide a unique set of capabilities between light and heavy organizations and further provide the testing ground for Tactics Techniques and Procedures (TTPs) that will form the initial FCS and Comanche equipped Units of Action (UAs) in the Objective Force (see FIGURE 3).[6]

FIGURE 3 STRYKER BRIGADE COMBAT TEAMS

As Ft. Hood, Texas was home to the Apache and Kiowa Warrior, Ft. Lewis, Washington is the home of the initial SSF program for the first two Stryker Brigades. The diagram below illustrates the similarity between the AH-64D UFTP and the Initial SBCT Collective Training Models (see FIGURE 4).[7] SBCTs 3-6 will follow a similar training plan, however, instead of a SSF plan, subsequent iterations will employ the USF model with a home-station NETT. The decision to switch from a Single Station Fielding Plan to a New Equipment Training Team model is interesting, considering the scope of the Stryker program. The decision to switch from a SSF fielding methodology to a NETT fielding initiated from PACOM's request to conduct the fielding at home station in Alaska, rather than the SSF at Ft. Lewis. The fielding, capped at six brigade

combat teams, and the infrastructure, training facilities and cadre are established at Ft. Lewis, Washington. The switch from one program to the other would be more understandable if the Stryker program expected to continue for a long period and involve many units, but this program is finite in both size and time. One possible justification for supporting PACOM's desire to change fielding methodologies and locations is the Secretary of the Army's decision to use SBCT #3 as the prototype for a new unit manning and unit rotation system. Detailed explanations of the proposal along with potential implications to fielding are addressed later in this paper. It appears that Army leadership is planning to make SBCT#3 resemble the fielding and personnel model for the UAs as closely as possible.

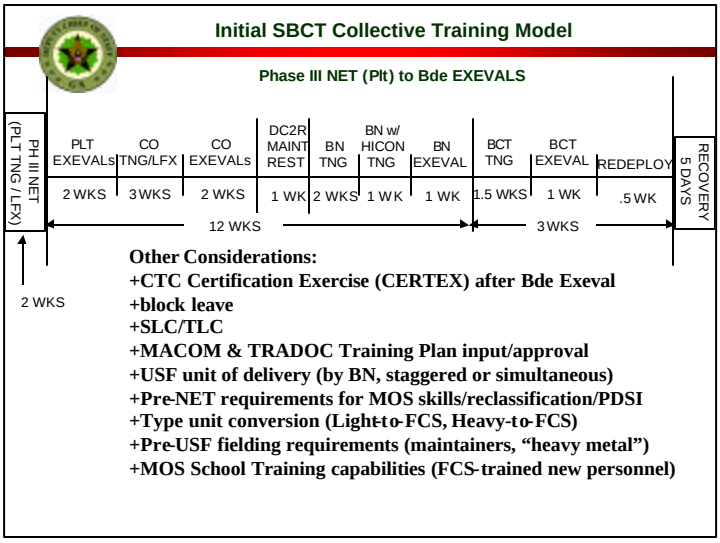

FIGURE 4 INITIAL SBCT COLLECTIVE TRAINING MODEL

One of the key aspects to bridging the fielding SBCTs as an Interim Force with FCS equipped UAs as the Objective Force will be the timing of the fielding process. Many of the mechanisms learned and employed with SBCTs 3-6 will be essential to validating, initiating, and sustaining the UA fielding process. TRADOC and the Army G8 have established a flow for the two fieldings that allows the UA to dovetail into the SBCT fielding process (see FIGURE 5).[8] In light of the potential to use the SBCTs as comprehensive models for UAs and the emergence of the unit manning/unit rotation program, the Army should reconsider the decision to field and garrison SBCT #3 in Alaska. The SBCTs will be in the U.S. Army for the foreseeable future, hence need to be compatible with UAs to the greatest extend feasible. As is indicated in FIGURE 4, the fieldings will not overlap, but will flow from SBCT directly to UAs. If the Army

leadership desires to validate the UA process, and adopts the concept of “mega-posts” described later in this paper, than an ideal opportunity exists today to establish Ft. Lewis, WA as the prototype “mega-post” facility for transformational operations. Ft. Lewis is large enough to support the entire SBCT force as a home base, has ready access to APOE/SPOE facilities, is co-located with a major facility of another service (McChord, AFB), and has large training facilities, suitable for both initial and sustainment training (Yakima Firing Center). Eventually I Corps could serve as the basis for a SBCT based UoE. This concept would not fit perfectly with the UA model, with six SBCTs to cycle from a fielding/re-fielding through CONUS garrisoning and rotational deployments, (nine is a more ideal number) but it does provide a large enough force to validate the concept. If this proposal was to be adopted, SBCTs would be ideally rotated through both Alaska and Korea, with other world-wide contingencies available.

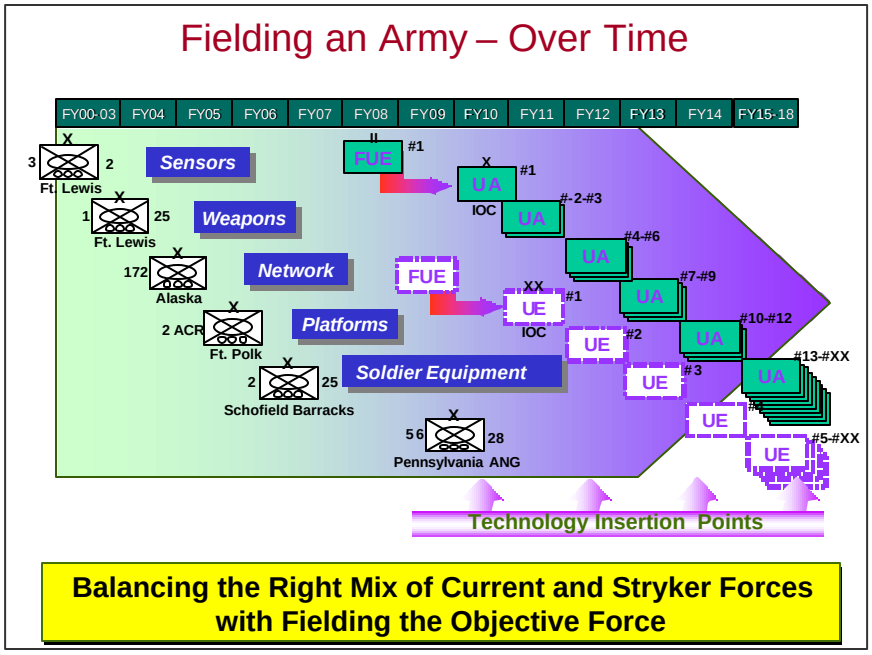

FIGURE 5 STRYKER VS UA FIELDING

ADVANTAGES AND DISADVANTAGES OF VARIOUS FIELDING METHODOLOGIES

UNIT SET FIELDING AND NETTS

The Army has utilized, and continues to employ variations of the USF with NETT and SSF models. Each of these models provides advantages and disadvantages, both short and long term. Most major weapons systems fielded to the force utilize the New Equipment Training Team (NETT) model with Unit Set Fielding (USF). This model involves the Program Manager (PM) establishing a NETT and deploying this NETT to an installation as that installation receives and trains on the new equipment. This is the model employed for the M1 and M2/3 series vehicles. There are several advantages to the NETT methodology. Personnel turbulence in fielding organizations is minimized by conducting both the fielding and initial operational and maintenance training at home station. Entire installations with multiple battalions, brigades or divisions can be fielded with a single NETT, as was the case with the M1A2 SEP at Ft. Hood, Texas, while minimizing both turbulence and time that units are C5 for reporting purposes. As is being demonstrated in the case of digitization, multiple NETTs for major and minor items of equipment can take place simultaneously, allowing units to compress fielding timelines.

The NETT methodology also has significant disadvantages. Any commander who has experienced a major fielding can attest to the challenges of introducing a major end item into his or her unit while meeting the day to day challenges of garrison life at home-station. Exempting units from the burdens of Red Cycle taskings, and professional development schools is difficult or impossible when multiple units are participating in a NETT fielding program on a single installation. The NETT itself faces extended periods of TDY with major fieldings, and quality control becomes problematic when the number of NETTs increases. Further challenging the NETT methodology are the infrastructure requirements for USF of major end-items. Many new pieces of equipment have unique range or simulation requirements, particularly during initial fieldings. Units may be able to send individuals to centralized simulation facilities for sustainment training, or conduct periodic large-scale gunnery or maneuver training while on deployment or CTC rotation, but this may not be either possible or practical at any given home-station during conduct of a NETT. The Army attempted to address the inherit problems of the NETT methodology for USF during the AH-64A/D fieldings with the introduction of Single Station Fielding (SSF) and the Total Package Fielding (TPF).

SINGLE STATION FIELDING UTILIZING TOTAL PACKAGE FIELDING

As was previously described, the Army has conducted SSF for the Apache program using the 21st Cavalry Brigade (Air Combat) as the executive agent for the DCSOPS of the Army, now G8. The program answered several issues previously experienced with home-station and NETT fieldings. By conducting all Apache collective fielding and training at Ft. Hood, Texas the Army was able to establish a high degree of standardization within the attack helicopter community. This standardization was evident during operations in Desert Shield/Desert Storm with attack helicopter companies from one battalion attached to other attack helicopter battalions with minimal integration issues. The Ft. Hood infrastructure was sufficiently robust to accept multiple battalions with all personnel and family members, and could handle the influx of aircraft and ground equipment. The Army invested in the instrumented range complexes to allow for initial gunnery qualifications of attack helicopter crews and organizations, and was able to use Ft. Hood as a proof of concept for gunnery tables, techniques and scoring technologies. The available land, ranges, and airspace in Central Texas allowed for long range, large-scale maneuver beyond that possible at most other Army installations. Centralizing the fielding and training also allowed for the emergence of a highly expert cadre that has been the center of excellence for attack helicopter training and operations. Units participating in the SSF program are isolated from their parent organizations, exempt from normal tasking cycles and the personnel locked into the training and unit for both the fielding and a 12-month period post completion. In the case of the AH-64A, Army and Aviation Branch leadership felt the aircraft and its associated TTPs represented such a significant change from existing organizations that it was necessary to start from a clean slate and conduct extensive training, both in the actual operation of the individual aircraft, as well as collective operations. The SSF model is not, however, without drawbacks.

The SSF fielding model requires a large numbers of personnel and units to undergo either a Permanent Change of Station (PCS) or a Temporary Change of Station (TCS) to the fielding location. Organizations fielding the AH-64A fell into two categories, transitioning or forming units. Transitioning units were existing AH-1S Cobra organizations that turned in equipment, went TDY as individuals to institutional training centers for several months to nearly a year, and then reformed as a unit at Ft. Hood for the SSF, returning to home-station upon completion. The Army was not only transitioning Cobra battalions, but also forming completely new AH-64A units as part of the overall buildup. These units had individuals identified early, conducted individual training and then formed as a battalion at Ft. Hood for the SSF program. Family disruptions for extended periods were common, and a high percentage of individuals

who participated in early unit fieldings later participated in subsequent fieldings, exacerbating the personnel turbulence issues.

The SSF fielding model also requires transitioning units to ship large amounts of equipment to and from the SSF location, while forming units must be able to draw complete sets of all organizational equipment prior to conducting training, adding a significant logistical burden to the installation and Army. All units undergoing this type of training are in a C5 status for reporting, for an extended period. One of the unintended consequences of the SSF program has been an isolation of knowledge and understanding about employment of attack helicopter organizations within a small community. The SSF has proven very effective at producing fully trained AH-64A/D battalions, but has done nothing to address the parent brigades, divisions or corps. The Army has relied on time to allow officers with experience to grow, rise in rank and "spread the word". This has had mixed results with some installations/organizations proving very effective at employing attack helicopter organizations, while others never quite figured it out. The Army introduced the OH-58D (KW) with a derivative of the SSF program.

SPLIT BASED FIELDING

Satisfied with the overall success of the AH-64A SSF program, the Army continued with a split-based model for the OH-58D(KW). The Kiowa Warrior is an armed version of the OH-58D AHIP, an unarmed improvement of the OH-58A/C. There were several different unit types fielded with the OH-58D(KW). The Light Attack Battalions of the Light Infantry/Airborne Divisions were pure OH-58D(KW) units and utilized an identical program to the AH-64A. The Heavy Divisional Cavalry Squadrons, with three heavy ground troops and two air troops conducted a split-based model of the SSF model. The Air and Aviation Maintenance Troops of the Divisional Cavalry Squadrons trained at Ft. Hood like their AH-64A counterparts, while the Squadron Headquarters and ground troops remained at home-station. The intent was to have the Squadron and ground troop HQs come to Ft. Hood for the final training and evaluation exercises. What transpired was less than optimal. The remaining elements at home-station were non-deployable while the air troops conducted training; the Squadron had commitments to both its parent organization and the 21st Cavalry Brigade, creating unnecessary friction. Squadrons tended to fall into a permanent tasking cycle while they were in the C5 for fielding category. The deploying/training elements of the squadron lacked continuous coherent leadership. As the integration and employment problem faced at a higher level with the AH-64 units, the Cavalry Squadrons faced with the challenges of reintegrating the new OH-58D (KW)

troops back into the squadron. Although expeditious and economical, the split-based program was difficult to manage, hard on units and did not provide the desired results.

PROPOSED FIELDING PROGRAMS

Much like the 1980s and 90s the Army is facing an extended period of change as new systems and organizations field as part of the emerging Objective Force. Principle among the new systems will be the Future Combat System (FCS) and the RAH-66 Comanche. The Army is not simply replacing old systems with new systems, but rather, designing wholly new organizations and concepts.

FUTURE COMBAT SYSTEM/UNIT OF ACTION FIELDING

In the previously discussed programs and their associated fieldings, the Army addressed systems and their units as stand-alone activities, with battalions/squadrons or even troops as the key unit involved. The FCS is described as a system of systems. The FCS/UA by its very design is far more complex in the connectivity of hardware, organization, and operational linkages necessary to successfully field and employ organizations. Rather than a battalion or squadron, the Objective Force unit level for fielding is the Unit of Action (UA), which is a brigade level organization.[9] The current proposal for the 2015 UA is a multi-functional combined arms organization (see FIGURE 6) including all of the enablers necessary to operate as an independent formation.[10]

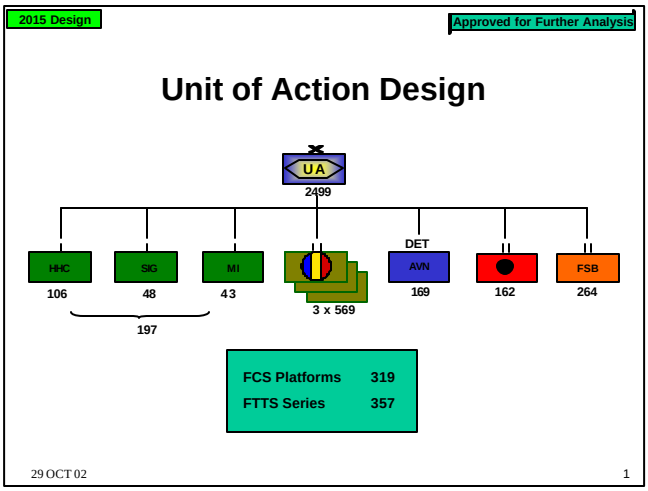

FIGURE 6 UA DRAFT STRUCTURE

The proposed UA structure includes organic ground based maneuver, air maneuver, reconnaissance, indirect and direct fires, support organizations and intelligence, all optimized for independent as well as inter-dependent, net-centric operations across the entire spectrum of operations. The Draft System Training Plan (STRAP) for the Unit of Action explains how the Army is coming to grips with the changing paradigm of Objective Force Organization.

> The UA is organized around FCS-equipped fighting teams that are competent and capable at the collective level. Soldiers in the UA, working more effectively as a team and with each other, than as individuals or in stove-piped systems, are at the core of agility during tactical operations. Leaders must be skilled in synchronization and coordination, able to dominate in the realm of tactical decision-making, and be combat proficient at the collective level. UA leaders must have a competency in the variables of terrain, enemy, weather, and the UA's capabilities. They must know how to leverage terrain to achieve positional advantage, how to achieve freedom of maneuver through the use of terrain for cover and concealment, how to integrate maneuver and fires, and how to reconcile tactical dilemmas in a manner that is unparalleled. The UA demands competency in developing the situation and knowing more about what is going on before, during, and after tactical operations with strengthened means of providing this information to small units. In the UA, leadership is empowered by access to rapidly and effectively distributed intelligence, surveillance, and reconnaissance (ISR) information that is both meaningful to subordinates and responsive to changes in mission….Therefore, FCS training strategies will promote competencies of individuals, teams and collective skill proficiencies. Training and leader development for captains, battalion, and brigade commanders in the UA will inculcate them with guile and courage, make them smart in tactical operations, and equip them with the wherewithal to employ parts collectively to dominate the realm of tactical decision. These strategies will assure that UAs have access, competence, and cohesion to overcome the insular domains that make up today's combined arms. UA training will drive combat proficiency at collective levels that optimizes individual soldier skills, small unit skills, leader skills, and synchronization and integration skills at the battalion and brigade levels.[11]

The expectations of our leaders and soldiers in the UA will exceed those of previous organizations. The demands on the training system; institutional, individual, and collective will surpass current systems available in the Army. The Army has produced a document that embraces a systems approach to training, including all FCS based organizations, individual through organizational training, institutional training, and recognizes the emerging reliance on individual and collective simulations based training, from the operator/maintainer through Brigade level staffs. The Draft UA/FCS STRAP defines a proposed training program for these new organizations including; individual, crew/leader and collective training strategies for maneuver, maneuver support and maneuver sustainment forces with considerations given for institutional, home-station, deployment, CTCs, and cross-domain employment.[12] Although not specifically addressed by the STRAP, an October 2002 briefing by the Army G8 Integrated Process and Action Team (IPAT) on the FCS Unit Set Fielding does address initial fielding/collective training for the Unit of Action. One of the current assumptions made by Army Leadership is that USF for the UA will take place at home-station utilizing the NETT approach to fielding.[13] This aligns with the SBCT 3-6 fielding plan, requiring the Army to address the challenges identified with the NETT approach to fielding. Although an integrated component of the UA, the Comanche program poses, unique challenges inherit to aviation maneuver systems.

RAH-66 COMANCHE FIELDING

The RAH-66 Comanche is the aviation component of the FCS/UA and will be the first maneuver platform of the UA fielded. Unlike previous platforms, the Comanche is a reconnaissance/attack helicopter designed for low-observable operations, reduced sustainment requirements and optimized as a net-centric platform linking the Joint Single Integrated Air Picture (SIAP) with the Army's Common Relevant Operating Picture (CROP). The Comanche program currently calls for initial fielding to UAs in the reconnaissance/light attack role, leveraging Manned Un-Manned (MUM) operations with UAVs much like a bird hunter and bird dogs. The Comanche, teamed with UAVs, will be the principle manned reconnaissance and light attack platform for the UA. Following fielding in the UA, the Comanche may be fielded at the RISTA (Cavalry Squadron) of the Unit Of Employment (UoE, Divisional equivalent). Eventually, the Comanche in later production blocks may be optimized to conduct heavy attack operations and replace the AH-64D Longbow Apache in the Attack Helicopter Battalions at the Unit of Employment (UoE, Division and Corps).

There currently exists a difference in philosophy in the fielding plan proposals for the RAH-66 Comanche between the Army G8 and the United States Army Aviation Center. The

Army approved fielding plan for the Comanche entails use of the 21st Cavalry Brigade and the existing Single Station Fielding Plan at Ft. Hood, Texas (see FIGURE 7).

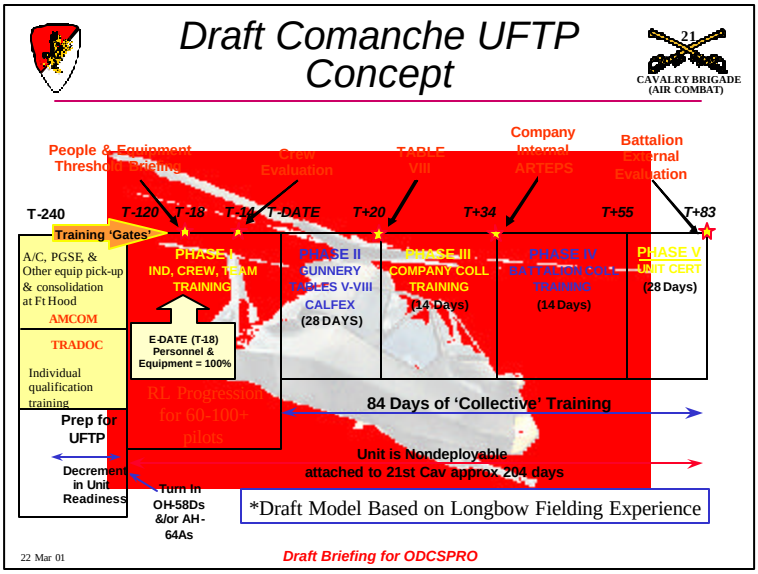

FIGURE 7. 21ST CAV COMANCHE UFTP PROPOSAL

The Army approved plan does not account for the recent changes to the UA structure that embeds an aviation detachment of Comanches and UAVs within the UA. The Aviation Center has developed and is proposing to move the 21st Cavalry Brigade to Ft. Rucker, Alabama and conducting individual through team training at the Aviation Center. This process is referred to as gated training (see FIGURE 8).[14] Individual and maintainer training are conducted at the Aviation Center. Crew qualification through gunnery, up through platoon level situational training exercises conducted at the Aviation Center.

Upon completion of this level of training, the unit deploys to home-station to complete training with its parent UA.[15] The Aviation Center proposal is consistent with the most recent recommendations by the G8's IPAT on FCS USF. The collective training would rely heavily on linked simulation, and require installations to develop ranges sufficient to handle collective gunnery tables. The proposal does not address the UoE's RISTA or Attack Helicopter Battalions that may be fielded subsequent to the UAs if the Army Acquisition Objective (AAO) for Comanche is increased from the current 650-unit level.[16] Training for all of the UA systems is significantly impacted by emerging technologies.

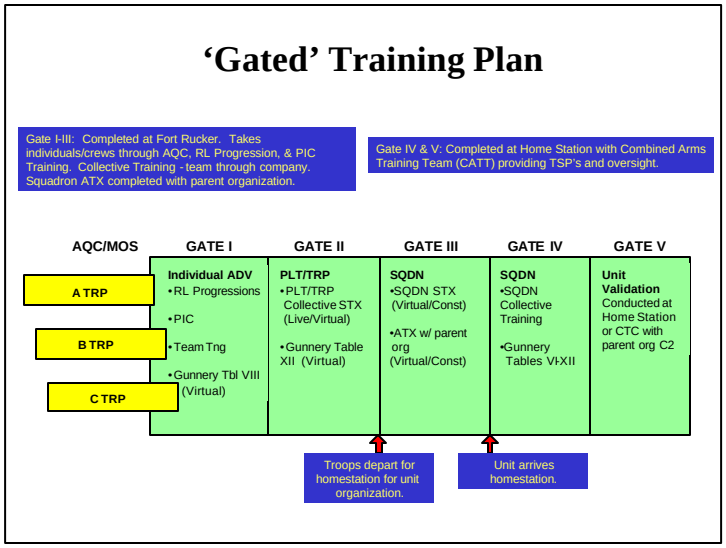

FIGURE 8 USAAVNC GATED TRAINING PLAN

IMPACT OF EMERGING TECHNOLOGIES ON FIELDING

The fielding strategies previously discussed all leveraged some level of technology in training/fielding. The Army has used individual crew and maintenance trainers extensively for many years, from the Combat Mission Simulator (CMS) for the AH-64A Apache, the Unit Conduct of Fire Trainer (UCOFT) for the M1 series, to the Longbow Crew Trainer (LCT) for the AH-64D Longbow Apache. An example of the new technologies that will be essential to the UA/FCS is the recently introduced Longbow Collective Training System (LCTS) that allows six crews to conduct simultaneous linked collective training through high fidelity simulation (see FIGURE 9).[17] Although the LCTS represents a significant improvement in simulation training devices, it remains a first generation closed system, unable to link with other simulation devices.

The introduction of high fidelity realistic simulation will be the principle factor driving the revolution in training. The LCTS allows high fidelity tactical training at the company level for a fraction of the cost required to operate the actual aircraft. The LCTS represents a significant improvement over previous collective or individual training systems, in that it allows company size organizations to conduct realistic maneuver training, in any conditions desired on a motion-based platform that accurately replicates aircraft performance and mission environmental and threat conditions. (see FIGURE 10).[18]

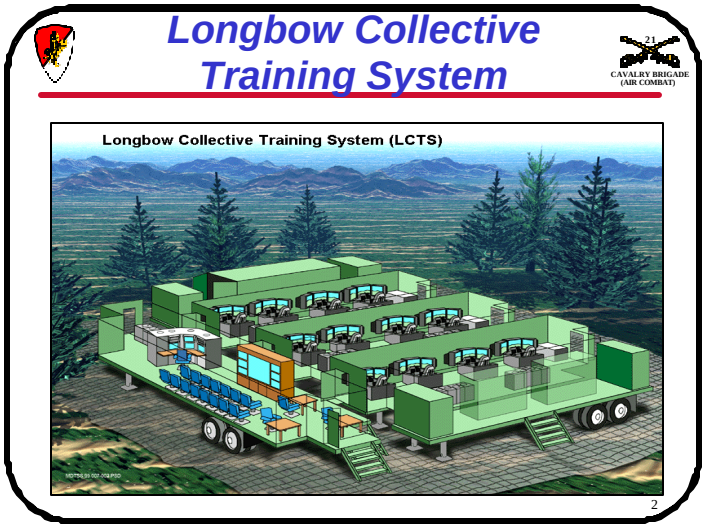

FIGURE 9 LONGBOW COLLECTIVE TRAINING SYSTEM GRAPHIC

Operators, maintainers, staffs and commanders will employ individual and networked systems that minimize the requirement to use actual hardware and terrain. As the Army moves towards fielding of highly integrated UAs, with multiple maneuver and support elements, it will be critical to leverage LCTS like technologies allowing multi-echelon combined arms training within the realm of simulation.

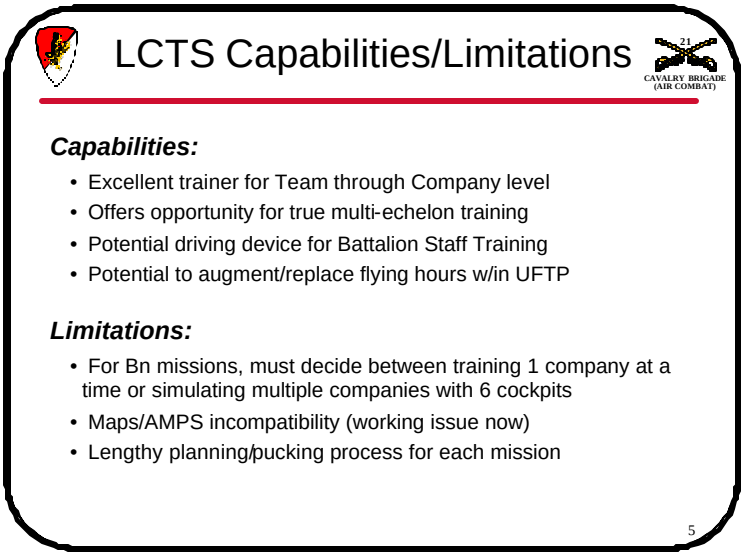

FIGURE 10 LCTS CAPABILITIES AND LIMITATIONS

What LCTS lacks in networking capabilities and potential, the AVCATT-A overcomes. The Aviation Center has designated the Aviation Combined Arms Tactical Trainer-Aviation Reconfigurable Manned Simulator (AVCATT-A) as the aviation simulation device for transformation. AVCATT is a reconfigurable collective training device that can replicate all current and future aviation systems, and has the capability of interfacing with other simulation devices including the Close Combat Tactical Trainer (CCTT). The AVCATT-A will allow real-time collective combined arms training through high fidelity simulation (see FIGURE 11).[19]

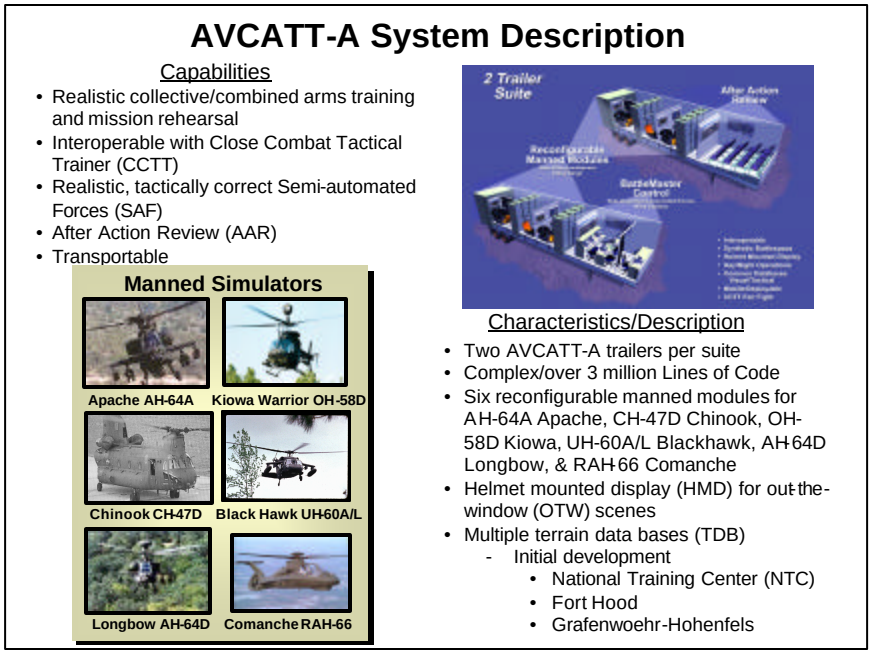

FIGURE 11 AVCATT-A SYSTEM DESCRIPTION

One of the challenges facing collecting training for the UA will be the integration of the various simulation systems to insure compatibility. Today, many simulation systems have not been adequately integrated or distributed to support the type of multi-echelon training essential to UA fielding and sustainment. Additionally maneuver platforms will contain embedded software that will allow the crews to conduct mission rehearsals from the vehicle or cockpit without leaving the motor pool or flight line, but as of yet, these systems are not linked to allow for multiple platforms conducting multi-echelon training events.

UNIT MANNING AND UNIT ROTATION PERSONNEL SYSTEM

The Secretary of the Army recently created a study group to develop a new Unit Manning/Unit Rotation system for the Army. Previously the Army has relied on individual manning to serve as the primary replacement system. Implications of the new personnel system proposal will be significant for any UA fielding or long-term sustainment program.

UNIT MANNING/UNIT REPLACMENT PROPOSAL

Under a proposed Unit Manning system, new units would be formed at the Brigade or UA level with a cadre of officers and NCOs augmented by the remaining personnel prior to undergoing a 10-month training period. Following the training period the unit would be evaluated, certified and subsequently available to the Army for the next 24 months to serve as required. Part of the proposal would involve the units conducting a planned 6-month deployment during the 24-month period of availability. At the conclusion of the 24-month period, the unit would be dissolved and a new unit would be trained and stood-up to replace it. Some of the implications of the proposed system would be 36-month battalion and brigade commands vice the current 24-month policy, reducing command opportunities by 50%, along with limited flexibility in officer and NCO assignments within the organization. The Army would be able to stop sending most families to overseas tours by conducting overseas tours for UAs as 6-month deployments rather than PCSing individual soldiers and families to overseas locations. The Army would save significant resources by eliminating most infrastructures overseas associated with family support. The prototype for this new replacement system is being demonstrated with the third SBCT being deployed to Alaska.[20]

IMPLICATIONS OF UNIT MANNING/UNIT ROTATION

The Army has a long history of failure with previous attempts at unit manning and rotation. This is not to suggest that the current proposal will meet with similar results, but it does cause one to pause and consider the challenges associated with the proposal. Previous attempts have focused at the company or battalion level of infantry or armor units. The new proposal will address the UA level for a complex combined arms formation. Beyond the personnel, aspects of the proposal, the training and fielding implications are significant. Fielding of an Army's worth of UAs will be a long and complex process, introduction of the proposed unit manning system will place the Army in a perpetual state of fielding. Essentially the Army will reach a steady state of re-fielding itself every three years. The Army will have to establish sufficient cadre to conduct training for approximately 1/3 of the Army at a time, based on the 3-year life cycle of proposal.

The initial proposal addressed 35 UAs for the Army, which if executed, would require the Army to train approximately 12 new UAs each year, indefinitely. The infrastructure required for UA level initial fielding is significant and it is unlikely that the Army could establish a single facility to support this program. Considering the goal of reducing personnel turbulence, establishing a fielding facility with units staying on station for 12 months, followed by a two-year tour at CONUS locations, including a six-month deployment, the program would run opposite to its stated goal.

The Army will need to consider how to establish CONUS locations that serve as both the training and garrisoning location for multiple UAs. Transformation will need to address consolidation of major CONUS troop posts to maximize training resources and reduce the overhead associated with excess facilities. With a stated goal of deploying UAs in 96 hours, selected facilities need to have good SPOE/APOE access. With an increased emphasis on joint interoperability, consideration to establishing joint installations should be a further factor in the selection of facilities. Considering the multiple facility requirements, the Army should establish no more than four CONUS locations for UAs, with each capable of handling at least three training rotations per year, and housing up to nine UAs depending on deployment schedules, and ready access to ports and airfields. The program begins to take on a resemblance to the Navy's home-porting program with families remaining in a fixed home base location for many years while the service member rotates between assignments.

FIELDING OPTIONS FOR THE UNIT OF ACTION

This paper has thus far addressed the two principle techniques to unit fielding/training, the New Equipment Training Team and Unit Set Fielding at home-station and the Single Station Fielding with Total Package Fielding methodology done at a central location. The FCS/Comanche equipped Unit of Action is a more complex organization than has previously been fielded as an entity by the Army. Unlike any existing organization, the UA will have organic air and ground maneuver, indirect fires, reconnaissance, intelligence, and sustainment capabilities. The organization will be organized, commanded and employed around distributive, networked communications architecture. The UA represents a fundamental sea change in the nature of land and joint warfare. The complete fielding process will be longer and will eventually involve more of the Army than any previous program. I will now look at how the previously discussed programs may work for the upcoming UA fieldings.

TRADITIONAL UNIT SET FIELDING WITH A NETT

As was previously discussed, the current FCS/UA proposal from the Army G8 calls for the FCS organizations fielded utilizing the NETT methodology.[21] The complexity of many systems within the UA will require several components to conduct individual and collective training at institutional locations prior to forming as the UA. It is unlikely that Comanche aircrew, maintainer or collective training will run as part of the home-station NETT. Assuming that unique elements like the Comanche, UAVs, indirect fire systems and other specialty skills previously trained, the NETT would likely proceed along these lines. The UA and subordinate battalion/detachment staffs would conduct operational and tactical training in simulation while operators and maintainers conducted hands on and classroom training. Similar to the system employed by the SBCTs, once crews train in basic systems operations, the NETT would focus collective training on one FCS battalion at a time, integrating C, CS and CSS elements throughout the training. Once the battalions trained and certified, the UA would conduct a series of operations and exercises both live and in simulation, integrating the entire UA. A certification EXEVAL would culminate the training program. Challenges with the NETT/USF approach will be installation infrastructure; simulation facilities, instrumented ranges and handling facilities for initial equipment issuing. Based on the SBCT and AH-64 programs, the home-station portion of the NETT would likely extend for 18-24 months. Overlaying the proposed unit manning/unit rotation system on a NETT based program may not be possible.

SINGLE STATION FIELDING

Conducting UA fielding utilizing the SSF model has some distinct advantages, as well as potentially fatal flaws. This methodology would require the Army to establish a facility capable of handling multiple UAs at various stages of training. Unless the program was robust enough to accommodate several UAs simultaneously, the fielding program would last for many decades. If the Army could establish a facility with the requisite infrastructure to house, train, and maintain several (3-5) UAs at peak capacity, then a consistently high quality of training would be possible. The SSF method would allow for the development of a highly skilled cadre focused on one specific requirement at a fixed location, much like the OPFOR at the CTCs.

Challenges with a SSF approach would be numerous. As previously mentioned, a large installation with extensive ranges, land, housing, cadre and training facilities would have to be committed to this process for an extended period. To place the issue in perspective, establishing a single facility would require a sustained fielding/re-fielding capability of one UA per month, indefinitely. Personnel/family turbulence would be high for UAs, and it is likely as

was the case in the Apache program, that many soldiers and families would end up making multiple rotations through the fielding process. The benefit to this training model would be a consistent fielding program with uniformly well-trained UAs, and the concentration of critical infrastructure at a single location. Beyond the initial fielding requirement, the sustainment model of approximately 12 UAs per year makes the practicality of a SSF program unwieldy. The goal of reducing personnel turbulence would not be achieved with a sustained SSF program.

HYBRID FIELDING LEVERAGING EMERGENT TECHNOLOGIES

The only program currently looking at a hybrid model for fielding is the USAAVNC and the Comanche program. Although the SSF model has served the Army extremely well for over 16 years, the impact of personnel turbulence has been high. With this in mind, and the requirement to support UA fielding, the Aviation Center has developed a hybrid program to capture the best aspects of SSF while supporting the "family of systems" approach necessary for the UA fielding. Using the proposed Comanche program as a model, the UA could follow a similar pattern. Unique individual and low level (platoon and lower) training would be addressed through institutional training centers. Simultaneous to individual level training, company and battalion staffs conduct training using advanced simulation exercises. The currently employed Aviation Training Exercise (ATX) program utilized by company through brigades prior to deployment in the Balkans is an example of this type of training program. Inclusion of distributive net-based training would allow the UA commander and staff to conduct UA level operations from remote locations. Completion of individual and low level collective training, and STAFFEX through simulation would end phase I of the program. At this point, all units would return to home-station to undergo a combination of simulation and live training exercises culminating in a certification exercise at a CTC or a suitably equipped "mega-post". With an increased emphasis on Joint Operations and the stated capability of UAs to participate as part of a JTF, integration of a JTX as part of the certification program bears serious consideration. This process would require several NETTs to conduct multiple UAs simultaneously. Each institution would retain and foster a component of expertise in UA employment/training and should be a contributor of cadre to the NETT.

CONCLUSION

The Army faces new and unique challenges with the introduction of the UA into the force structure. Not only is it a new organization in design and equipment, but also in employment. This paper has reviewed several previous major program fieldings. It has looked at the NETT

and SSF approaches to fieldings. Each program has advantages and disadvantages, but neither program as currently structured is sufficient to address the challenges of sustained UA fielding. The NETT lends itself to one for one equipment swap outs and evolutionary/incremental changes to operations; however, it lacks the depth to address the fundamental changes in organization and operations embodied by the UA. No existing organization lends itself to static conversion to a UA through the existing NETT philosophy. Wholesale changes in TO&E, integrating new formations, adopting new maintenance and operational procedures, and establishing a new personnel management system require a more holistic approach than that offered through the NETT.

The SSF allowed the Army to make the wholesale organizational and doctrinal changes required with the introduction of the AH-64 program; however, the SSF represents a resource intensive program that causes a high degree of personnel turbulence. Although the retention problems associated with the AH-64 program were a challenge for the Army, they pale in comparison to the issues we would experience with an Army wide program as with the Objective Force fielding progresses. No one, who has experienced the benefits of a SSF program, will deny the training benefits of this model. In a perfect world the Army would establish a large facility with world class ranges, training areas and simulation facilities to conduct the entire UA fielding and sustainment program, however, the scale of turbulence for families and soldiers, the concentration of critical resources in one location sufficient to handle multiple organizations simultaneously overcomes any benefit this model offers.

Although not directly related to the fielding process, the scope of change being undertaken along with the challenges associated with staffing and commanding combined arms, joint capable organizations at the UA level, demand a re-look at the existing professional development and education system. Officers and NCOs “stove-piped” through branch unique assignments will be unprepared for the responsibilities inherit with UAs. Army Aviation ran into a similar education problem with the ill-fated multi-functional battalion proposal. After multiple attempts to codify the proposal, Army leadership was unconvinced that the educational and professional development processes would adequately develop officers capable of commanding multi-functional aviation battalions. The requirements on the UA commander represent an even greater challenge to our professional development system.

The Implications of the proposed unit manning/unit rotation system on potential fielding methodologies will be significant. Neither the pure NETT or SSF programs are capable of handling the scope of an Army-wide continuous fielding and deployment program. A derivative of these two programs will be necessary to support the continuous nature of fielding that the

Army will experience under the Objective Force. The introduction of unit manning/unit rotation with the UA will establish a condition of perpetual re-fielding for 1/3 of the Army every year. Although experienced individuals would seem to reduce the timelines and challenges for re-fielding units, SSF experience with the AH-64 program does not bear out this. The challenges and timelines for units with high numbers of individuals with previous fielding/AH-64 experience did not appreciably reduce the challenges or time required for UFTP.

While both of these programs have served the Army well, and continue to do so, neither methodology in its current form is feasible, acceptable or suitable for the task of supporting the fielding of Units of Action.

RECOMMENDATIONS

The Hybrid program currently posited by the Aviation Center for the RAH-66 Comanche fielding is the best candidate for the UA fielding. The program allows TRADOC institutional expertise to be grown and leveraged, something neither the NETT nor the SSF currently do. The hybrid program reduces personnel turbulence and leverages advances in simulation and networking. A derivative of the Hybrid proposal allowing individual TRADOC centers to conduct initial training at low-level system/unit levels, with consolidation of the UA at one of several locations for large-scale collective training provides the optimum solution for long-term success of the Objective Force. Consolidation at a single location is only effective if the Army retains the current system of individual replacements. If the Army adopts the unit manning/unit rotation program, establishment of several “mega-posts” is the most acceptable solution. With impending BRAC rounds, the Army staff should be considering which posts would best support future requirements. Not only should posts support training infrastructure suitable for both initial and continuation fielding, but also, inline with CSA guidance to deploy in 96 hours, facilities should have easy access to required APOEs or SPOEs, and consideration to establishment of Joint Installations should be made. The current proposal by the Army G8 assuming that NETT will be the principle methodology for the UA fielding should be re-evaluated. Use of a pure NETT will not address the scope of changes within organization and operations represented by the UA and leave the Army and soldiers frustrated by the outcome. The Army should use SBCT #3 in Alaska to validate a methodology for sustaining the fielding program over multiple unit iterations prior to adopting this method for the UAs.

The Army leadership should strongly consider the current plan for fielding SBCT#3 in Alaska, and look at using Ft. Lewis, Washington as the prototype for future UA fielding and establishing a “mega-post” with all SBCTs home based there. This adjustment would allow the

Army to capture lessons learned for both the fielding/training portion of transformation and validate the unit manning/unit rotation concept.

As the Army adopts a comprehensive Unit Manning and Unit Rotation program, the development of “mega-posts” consolidating the infrastructure requirements for both initial fielding and subsequent “re-fieldings” after unit rotations, ease of deployment considerations, and Joint compatibility seems the only acceptable option. In addition to the new structure and fielding requirements, a comprehensive review of the officer and NCO educational and professional development systems will need to be undertaken.

Currently, brigade level commanders are prepared professionally to command branch or function specific types of organizations. The advent of the UA will move organic combined arms and even joint formations from the Division to the Brigade level. Our education system and professional development must better equip officers and NCOs to both command and support these new combined arms/joint formations. The current Captains Career Course (CCC) focuses on mastering the skills associated with commanding a company within the officer’s branch. Combined Arms and Services Staff School (CAS3) was where officers who were already branch qualified captains, learned the skill-sets necessary to serve as staff officers on brigade and higher staffs. Command and General Staff Officers Course (CGSOC) is where we introduce officers to brigade level, maneuver branch specific, operations, division level combined arms operations, and initial exposure to joint operations. The Armed Forces Staff College (AFSC) or JPMEII is our first comprehensive look at Joint Operations, and this course is limited to officers assigned against joint billets. Our current education system is inadequate for the challenges of the UA, and will need to begin addressing the skill-sets needed to lead within lower level combined arms and joint formations earlier than we currently do. The direction planned for transforming the OES will further exacerbate the problem by reducing opportunities for junior officers to receive both instruction and peer interaction.

The Army should reconsider the current plan to reduce the CCC to a combination seven weeks Distance Learning (DL) and eight week resident course with elimination of CAS3 (see FIGURE 11).[22] CAS3 has already become a shortened course that flows directly from the CCC, hence losing the value of an assignment and branch qualification prior to attendance. CAS3 should remain in the OES program with a role change to a course that prepares branch-qualified captains to serve on UA staffs, with a strong focus on not only the staff skills, but also an introduction to combined arms and joint operations. The timing for the course should return to the original program where officers attended CAS3 in their sixth to eight years of service.

This adjustment to the education system would allow the Army to provide the initial preparation necessary for officers to serve at the UA level.

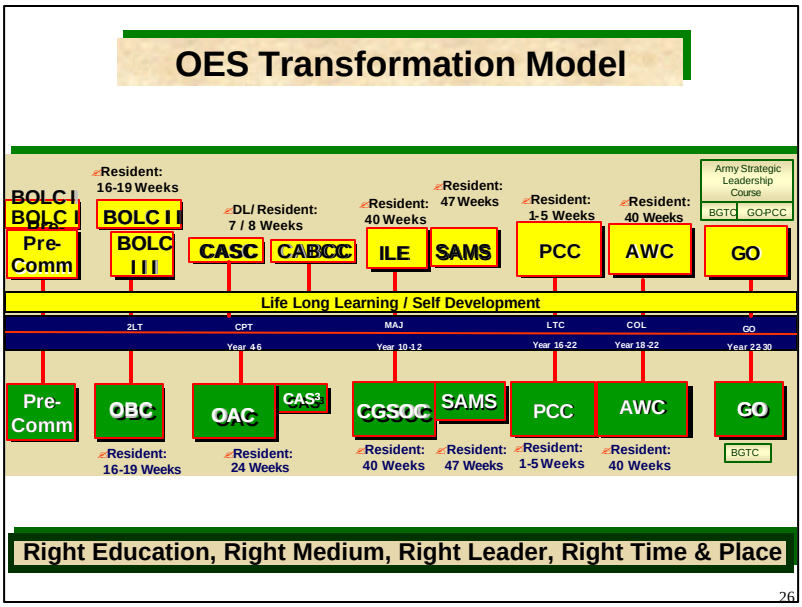

FIGURE 12 OES TRANSFORMATION MODEL

Training space, cadre requirements and simulation facilities should be focused on approximately four major CONUS installations, each serving as the HQs of a UoE and a permanent training cadre. Theater specific UoEs overseas could be established to provide the required support, command, and control for deployed UAs. Serious consideration should be given to establishment of joint installations that meet the training, sustaining and deployment requirements. TRADOC facilities will need to be structured to conduct the individual skill and low-level unit training activities on a sustained basis. Tying TRADOC installations into a continuous fielding process will have an added benefit of reducing the perceived distance between “school house” operations with field operations. This consolidation will also lend itself to enhancing the stated goal of reducing personnel turbulence by allowing families to “home-base” for several rotations.

WORD COUNT = 8975

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