



Simulation Operations Quarterly

Relevant and Ready

From the Office of the Army G3—LTG Richard A. Cody

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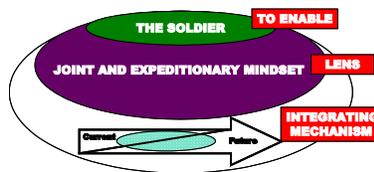
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The Army today has over 320,000 Soldiers deployed in over 120 countries worldwide. We must maintain a trained, ready and dominant land campaign force for the combatant commander in order to meet the needs of our nation. The Army Campaign Plan is focused on seventeen Army Focus Areas that have been outlined by our Chief of Staff, General Schoomaker. The purpose of this intensive effort is to organize, equip, and train forces for the conduct of swift and sustained land combat operations.

The CORE competencies that we must focus on are the Soldier, the Joint and Expeditionary Army Mindset, and the capabilities

and composition of the current and future force. The Soldier is at the center of everything we do. Secondly, the Army needs to be totally integrated into the Joint Team. Our success depends on deploying trained and ready forces to the Combatant Commander. A Joint and Expeditionary Army force must be able to close with and destroy the enemy rapidly and strategically over long distances. This is the Lens to the Current and Future Forces capabilities and composition.

As our Army continues to support a variety of missions, your role as Simulation Operations (FA57) Officers in developing, planning and executing simulations in support of training and military operations will be of great value to units that are deploying and resetting. The transformation of the Army is ongoing. We continue to field the Stryker Brigade Combat teams, and are moving to more modular brigade Unit of Action formations that are self contained, readily deployable and capabilities based. The 3d Infantry Division (Mechanized) has begun its modular restructure, as will the 101st Airborne Division (Air Assault) in coming months.



(cont'd on page 8)

- **The FA57 officer is in a unique position to shape the current and future force.**
- **The FA57 must identify and bring forward the M&S needs of the total Army so that the current and future force has the necessary training capabilities across the full spectrum of conflict.**
- **During and after OIF, the Third U.S. Army BSC has been very active in support of CENTCOM.**

What is the Role of the FA57 ?

What is the role of the FA57 in today's force, as well as in the future force? Obviously, the Army is changing, but are we adapting? Are we meeting the goals the Army G3 laid out for us: to change the culture of the Army and how it views simulations; to provide simulation support to the warfighter; and, to create the future simulations? Are we providing the

opportunities for our officers to remain operationally current? The answer is "yes" to all these questions!

The proponent sees the Simulation Operations (FA57) officer as an operator first, and then as a simulationist. As the subject matter expert (SME) on Battle Command and Simulations, the FA57 officer

applies models and simulations to create the environment that prepares soldiers, leaders and units for war. FA57 officers plan and employ a mix of Live, Virtual and Constructive (LVC) simulations in support of training and military operations. FA57 officers integrate modeling and simulations with Battle Command Systems.

(cont'd on page 21)

Simulation Operations Life Cycle Management

"The Proponent Office seeks the widest possible involvement of Simulation Operations military and civilians in our Executive Councils and Education Panels. It is in these forums that the community has a collective voice in the solutions to our issues and future direction."

In the last edition of the Simulation Operations Quarterly, I mentioned that the Proponent Office manages all life cycle functions for Simulation Operations. As I noted in the last issue, we have had many successes as a Functional Area and as a Proponent Office. To provide some further information on how we are operating in the Proponent Office and in conjunction with the community, I'll briefly explain some of the things we do internally and externally that continue to work.

To perform any life cycle function well, you have to understand each of the life cycle functions you manage. For instance, looking at the chart below, you cannot effectively deliver education and training without understanding where your officers are assigned, what they do, what numbers you are assessing per year, what your overall development strategies are, how the force is utilized and distributed, what your personnel require to perform/progress in their careers, and a knowledge of personnel transition issues.

In the Proponent Office, it is a requirement of every life cycle manager to work closely with each of the other functions. We conduct formal quarterly Proponent Office Strategy Sessions to understand better where we are, understand our current issues, problem solve, and plan our way ahead in each respective area. However, it is our daily integration of these life cycle management areas that continues to provide the right insights for decisions in a rapidly changing environment.

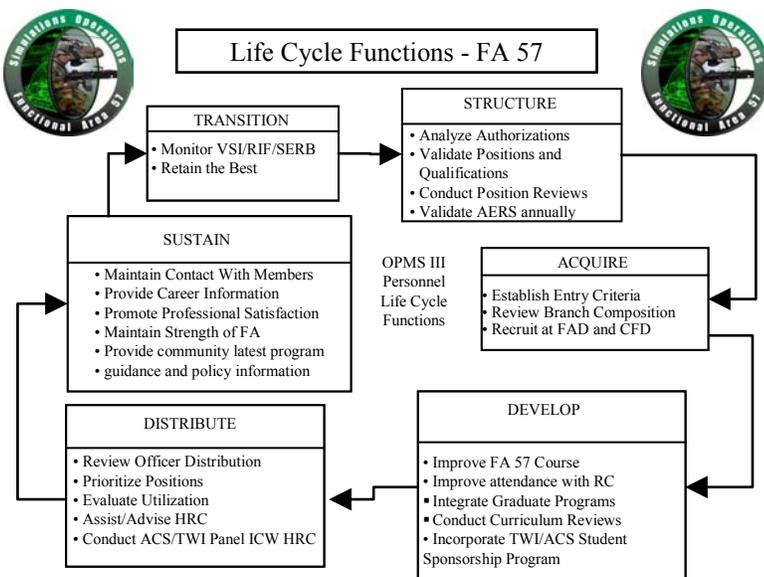
Externally, it is essential that we effectively communicate with the force and other Army elements to develop and provide the most up-to-date information on issues, solutions, requirements, and plans. Daily contact is essential and is effectively accomplished by phone, email, and the reflector to work issues directly with the soldiers and commands. Our websites are up to date and also provide key information on our Functional Area. Obviously, one of our newest, most visible forums to address where we have

been, where we are, and where we are going is the Simulation Operations Quarterly. Readership and article contributions have been outstanding. While the above media are effective, it is critical to maintain other forums to collectively look at issues and drive decisions for the community as a whole.

The Proponent Office seeks the widest possible involvement of Simulation Operations military and civilians in our Executive Councils and Education Panels. It is in these forums that the community has a collective voice in the solutions to our issues and future direction. Recognizing the difficulty for many of you to get away to one event, we try to maximize attendance by scheduling these with other major events. For example, we have conducted four Executive Councils and Education Panels at the Interservice/Industry Training, Simulation & Education Conference (I/ITSEC). While these were successful, we are continually seeking other venues to incorporate the community as much as possible.

For instance, at the last I/ITSEC session, potential Operations and Education Working Groups were discussed, and an immediate need was identified to involve subject matter experts more directly in our course design. In response, the Proponent Office conducted a Course Review 25-26 February hosted by the Army War College.

(cont'd on page 7)



Training Capabilities Analysis of Alternatives (TC AoA)

As reported in the previous Quarterly, the Training Capabilities Analysis of Alternatives (TC AoA) Study was formally initiated on 3 November 2003 with a 4-star Senior Steering Group (SSG) Kick-Off Meeting. The purpose of the TC AoA is to identify cost-effective methods for accomplishing Joint and Service Training, to include modeling and simulation capabilities that were to be met by the terminated Joint Simulation System (JSIMS). Since the initial SSG meeting, the study team has conducted two business games and two SSG meetings as shown in the study timeline.

Alternatives/ Methodology Game

The first business game, the Alternatives/Methodology Game, was held 14-16 Jan 04. The purpose was to engage the Services, JFCOM, Special Operations Command (SOCOM), and the Intelligence Community in identifying training requirements, technology issues, investment strategies, and organizational management issues. The Game consisted of 4 “moves” wherein the stakeholder teams responded to questions posed by the TC AoA Study Panel teams and

the Joint Staff team. At the end of each move, each team briefed its results to the other participants and responded to questions. The game culminated in a hotwash session where each team identified its top 3 training requirements, top 3 issues for the study team, and top 3 issues for the SSG to address. While there were many interesting results from the game and the subsequent SSG, the main takeaways were as follows:

- The Study Team should reduce the scope of the study to the Joint Operational Level of training (e.g., a Joint Task Force Commander and Staff).
- The Services support the Joint National Training Capability approach to modeling and simulation whereby each service maintains ownership of its systems, and these systems are “loosely” federated for specific events.
- There is a need for a clear governance construct to guide the development and operations of any future Joint training system.
- The Intelligence community must be a full partner in Joint and Service training.

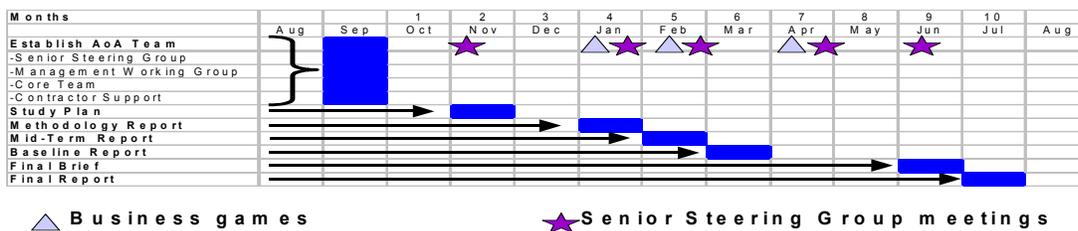
Industry Strategy Game

The second business game, the Industry Strategy Game, was held 11-13 Feb 04. The purpose was to engage Industry and Academia in identifying technology, investment, and business strategy approaches to addressing the requirements identified in Game 1. For this game, the Industry and Academic participants were divided into four teams representing different types of corporations ranging from traditional defense contractors to training service providers to the commercial gaming industry. Each team developed a response to a notional Request for Proposals (RFP) and then went through a series of briefings to the government teams to refine their responses. A fifth team representing “Wall Street” offered insights from the business perspective. The game culminated in each team briefing their proposal and recommendations to the SSG members. The game was very interesting and offered many valuable insights to the TC AoA Study Panel.

(cont'd on page 4)

"The Services support the Joint National Training Capability approach to modeling and simulation whereby each service maintains ownership of its systems, and these systems are "loosely" federated for specific events."

TC AoA Timeline



Training Capabilities Analysis of Alternatives (TC AoA) (Cont'd)

"Improving training capabilities is a business management/strategy problem, as well as a technology problem."

The key takeaways were as follows:

- Improving training capabilities is a business management/strategy problem, as well as a technology problem.
- Current acquisition and management approaches include many barriers to competition and innovation, and do not align government goals with contractor incentives.
- The end user is often too far removed from the developer.

- We need to recognize that training requirements and technology are continually evolving.

Way Ahead

The next event in the TC AoA is the 8 Apr 04 Decision Game. In this game, participants will be evaluating various alternative strategies and recommendations developed by the TC AoA Study Panel based on the results of Game 1 and 2 and various activities of the Study Panel. Additional SSG

meetings to determine the final outcome of the TC AoA will take place in Apr and Jun. The Final Report is due 31 Jul 04.

- Ms. Leslie Winters
O&P Dep. Div Ch
HQDA, AMSO



SOC students get BBS hands-on training at the T3 Battle Lab, Fort Dix, NJ

Simulation Operations Course (SOC) Graduates 14 Students

Fourteen students joined the ranks of SOC graduates on 12 Feb 04. Attending the course held at Ft. Belvoir, VA, were eight Active Component officers, one National Guard Warrant Officer, one Army National Guard officer, one Active Component SGM, one USMC officer, and two DA civilians.

officer or DA civilian acting as a Brigade commander. Student feedback from the course was positive, with one student stating, "This was the best course I've attended in the Army."

The highlight of the course was, as always, the site visits to Army installations to see and touch Army simulations and simulators. Past courses have visited simulation centers at Ft. Lewis, Ft. Leonard Wood, Ft. Hood, Ft. Riley and the National Simulation Center (NSC) at Ft. Leavenworth. This course visited Ft. Dix and Ft. Indiantown Gap. Ft. Dix, and its Training and Training Technology (T3) Battle Lab, provided an opportunity for students to hear about National Guard simulation initiatives and experience hands-on training conducted by the 1st Bde, 78th Div Battle Projection Group. Students saw the EST 2000, Guard Fist, Call for Fire Trainer, Corps Battle Simulation (CBS), got hands-on training with the Brigade/Battalion

Battle Simulation (BBS), and learned how exercises are conducted at the T3 Battle Lab. Ft. Indiantown Gap provided the opportunity to experience five different aviation simulators. Training was conducted at the Aviation Support Battalion of the Eastern ARNG, Aviation Training Site.

The SOC development team is hard at work making improvements to the course. Collecting and synthesizing feedback from students, SOC alumni, the instructor team, and a Peer Review team of senior FA 57s, the development team is evaluating changes that will cause the SOC to be even more effective in preparing new FA 57s. Look for these improvements in upcoming courses.

- Dr. Ed Degnan
Sim Ops Proponent
Education Development Mgr

"Collecting and synthesizing feedback from students, SOC alumni, the instructor team, and a Peer Review team of senior FA 57s, the development team is evaluating changes that will cause the SOC to be even more effective in preparing new FA 57s."

Questions on the Simulation Operations Course

Has there been a change to the Course Dates for FY04?

Yes. The new dates for Jun/Jul course are: Report on 6 Jun 04; start training on 7 Jun 04; and graduate on 16 Jul 04.

Where is the lodging for the Simulation Operations Course?

Washington Suites Hotel located at 100 South Reynolds Street, Alexandria, VA. You have the spaciousness of a suite (one bedroom) and the services of a first-class hotel, with easy access to Fort Belvoir and Washington D.C. This hotel is an Army contract facility that participates in the Army Lodging program, and is the official hotel for the course. Lodging cost is well below the Washington D.C.

lodging allowances.

What sites will the Jun 04 Simulation Operations Course visit?

The class will visit the I Corps Warfighting Center at Fort Lewis, WA; the Battle Projection Group, 1st Brigade, 78th Div (TS); and the Training and Training Technology Battle Lab at Fort Dix, NJ.

What kinds of activities occur in the Simulation Operations Course?

During the course you will be exposed to simulation officer apprentice skill sets, models and simulation processes, simulation capabilities, integration of simulations into unit training, and planning a simulation event.

The learning activities include: lecture, small group discussion, practical exercises, writing assignments, guest speakers and case studies. You will write a research paper on an assigned topic and present various briefings. During the site visits, you will observe simulations that Army organizations use and discuss with the subject matter experts how they integrate them into an exercise. Outside class readings and group projects also occur, preparing you for classroom activities.

- Mr. Gary Dahl
Sim Ops Proponent
Training Specialist

"During the site visits, you will observe simulations that Army organizations use and discuss with the subject matter experts how they integrate them into an exercise."

Force Structure Update

What does the future hold for Functional Area (FA) 57, Simulation Operations force structure? A number of initiatives underway have already produced positive results.

First, we received word from FORSCOM that three full Colonel positions in support of US Army Reserve (USAR) Simulation Brigades are being re-code from branch immaterial to FA57 in FY06. We also received confirmation from TRADOC that a Lieutenant Colonel authorization will be added at the US Army War College, Carlisle Barracks, PA, and at the Joint Readiness Training Center (JRTC), Fort Polk, LA. In addition, Headquarters, Department of the Army, Office of the Deputy Chief of Staff, G3-Training is

recoding a Lieutenant Colonel authorization to FA57.

Second, we are documenting Advanced Civil Schooling (ACS) positions requiring a Master's or PhD. Among these are PhD requirements for duty positions at the National Defense University (NDU), the Army War College (AWC), the School for Advanced Military Studies (SAMS), and the Joint Futures Lab at Joint Forces Command. Positions being coded for Master's degree requirements include staff at the Army War College, instructors at the Command and General Staff College, and select authorizations at the National Simulation Center (NSC), Warrior Prep Center (WPC), HQDA, PEO-STRI, the Combined

Arms Center Combat Developments Activity (CACDA), TRADOC Analysis Center (TRAC), proponent branch schools (Forts Benning, Sill, Bliss, Rucker, and Gordon) and the Special Warfare Center (SWC) at Fort Bragg.

Last, we are working with the US Army Force Management Support Agency, Authorization Documentation Directorate (USAFMSA-ADD), Fort Belvoir, VA, to insure the FY05 MTOE documentation of Assistant S3s in select Corps level Brigade Headquarters and equivalents, successfully documented last year, is not "lost in the rush" while building the new FY06 authorizations.

We continue to look for opportunities to add FA57 force

structure where Simulation Operations adds to the capabilities of a unit or organization. We are not "adding force structure for force structure's sake," but rather, increasing the operational effectiveness of the Army through the authorization of our unique skill set in select units. Future authorizations are targeted for Joint Forces Command Joint Warfighting Center, Central Command, European Command, Pacific Command, 1st Army, 5th Army, 8th Army, Fort Knox, Fort Leonard Wood, Fort Lee, the Defense Modeling and Simulation Office (DMSO), and the Naval Postgraduate School (NPS).

- Mr. John Hammond
Sim Ops Proponent
Force Structure Manager

The U.S. Army War College and Simulation Initiatives

Is there a role for FA 57 officers in our educational institutions supporting Title X efforts? I would answer "Yes" and offer the following story on how the U.S. Army War College (USAWC) is employing its small band of FA 57 officers to tackle the challenge of life-long experiential learning in support of strategic leader development.

Here at the USAWC, the Center for Strategic Leadership (CSL) has the mission to plan, coordinate, and execute simulation exercises for the College and other governmental agencies. The CSL Director, Prof. Doug Campbell, identified an emerging concept he wanted assessed: Can we apply distributed simulation solutions to enhance the college's experiential education? He assigned his recently assigned FA 57s to form a Strategic Experiential Education Group (SEEG) to address that concept.

The SEEG's mission is to research, coordinate, and integrate appropriate simulation solutions to complement and enhance the USAWC experiential education curriculum. Our small group (currently 4 people) has the charter to investigate current and emerging M&S tools, to include distance learning technology, for potential use within the USAWC's experiential education curriculum for both resident and non-resident work. Our challenge is to find the best tools to support USAWC's goal of educating the nation's current and future leaders in strategic leadership and in the role of landpower in a Joint, multinational,

and interagency environment.

Strategic leadership is described as "the process used by a leader to affect the achievement of a desirable and clearly understood vision by influencing the organizational culture, allocating resources, directing through policy and directive, and building consensus within a *volatile, uncertain, complex, and ambiguous global environment* which is marked by opportunities and threats." How then do we establish such a strategic leadership environment with M&S tools so that it facilitates an experiential education curriculum? The SEEG is currently pursuing some initiatives to replicate a scaled down strategic leadership environment for seminar or distributed learning opportunities.

Our first initiative is the Strategic Decision Making Environment (SDME). The concept of our SDME is to immerse students in a virtual "*volatile, uncertain, complex, and ambiguous global environment*" and require them to address critical issues via the effective and efficient fusion of information. As envisioned, our SDME concept has been developed to incorporate aspects of the Digital Battlestaff Sustainment Trainer (DBST) and other Army, DoD, and U.S. government M&S tools. The initial operational capability (IOC) for the SDME is May 2004.

Our second initiative is a bit more challenging. The USAWC Academic Year 2005 Planning Guidance calls on CSL to "undertake an educational experiment to explore

the relevance of internet-based, massive multi-player distributed games (MMDG) in the curriculum. The concept will be to conduct an elective course for credit during the academic year, using this distributive experiential education medium as a test of principle. The students will be asked to report on their experience and the potential for this type of game as an experiential learning opportunity." We have identified a potential internet-based, role playing simulation for our pilot program and have begun the necessary coordination to establish this course to meet the planning guidance. The web-based software tool we have identified will allow us to create a low-cost multi-player distributed game with minimal up front investments. We believe this tool could replicate some of the complexities of the strategic leadership environment for seminar or distance learning use. We have begun our initial courseware analysis and design work with a target date for conducting the course in February 2005.

Despite being in existence for only a few months, the SEEG has already begun to meet some of the challenges placed in front of them. If our current tempo is any indication of future work, the SEEG will be fully engaged in the business of strategic leader education for a long time to come. I would say the moral to my story is simple: you don't have to be in the field to support future readiness. The Army's Simulation Operations program is designed to support commanders with viable simulation

tools. Whether in the field or in the classroom, FA 57s can have a significant impact on Army readiness.

Chapter 1, *Strategic Leadership Primer* (published by DCLM, US Army War College), 1998.
USAWC AY05 Planning Guidance, dtd Jan 04.

- COL Wade B. Becnel
Chief, Strategic Experiential
Education Group Center for
Strategic Leadership
U.S. Army War College



U.S. Army War College
(USAWC), Bliss and Root Hall

"Our challenge is to find the best tools to support USAWC's goal of educating the nation's current and future leaders in strategic leadership and in the role of landpower in a Joint, multinational, and interagency environment."

Warrior Skills Trainer (WST) or Convoy Trainer by Another Name (Abstract)

Understanding What WST Is. The WST is a rapidly developed combination of a number of simulation models – It is a “crawl” effort. It is a good enough system that allows units to train on convoy related tasks quickly and use their experience to identify shortcomings and improve upon them.

Understanding the WST’s Purpose and Limitations. The purpose of the WST is to provide a crawl-level training environment for units to practice convoy Tactics, Techniques and Procedures (TTP) before live training. It is also used as a refresher following live training to work additional TTPs. Its use assumes the unit trainer understands the unit’s current abilities and the training focus needed. It’s meant to

develop leadership and unit TTPs and practice all the moving parts of a convoy operation.

Soldier Proposed Improvements. Soldier recommendations for change include:
 - Training would be better if screens were larger and had higher resolution.
 - An increased panoramic system of at least 270° with an ideal 360° integrated view.
 - Drivers should have a “panable” monitor.
 - Add rear view mirrors for the driver to see what is going on behind his vehicle.

Other Proposed System Enhancements. The WST training staff continues to incorporate operational and scenario improvements and rudimentary system enhancements based on

numerous sources: intelligence reports, the media, recommendations of Operation Iraqi Freedom (OIF) veterans, and recommendations gleaned from soldier evaluation forms.

The complete article can be read and viewed in the FORSCOM, Analysis Modeling and Simulation Newsletter, Edition 4, dated Feb 04. <https://freddie.forscom.army.mil/madcap>.

For more information, contact Mr. Steve Brock at (254) 285-6822 (DSN 259-7066) or Mr. Art Kowalkowski at (512) 589-4681.

545th MP’s Demonstrate Probable Crew Configuration M240C 7.62 MG



Figure 2. M16/M4 Firing From Crew Compartment

Simulation Operations Life Cycle Management (Cont’d)

In attendance were some of the most experienced military and civilian simulation professionals we could gather from Germany, Ft. Hood, Ft. Lewis, Battle Command Training Program (BCTP), National Simulation Center (NSC), Army War College, and other locations. This group worked with the Proponent Office in a methodical course review and in making recommended enhancements to the Simulation Operations Course. Due to the success of this review, the Proponent Office will regularly incorporate these sessions along with our ongoing student feedback, post-graduation surveys, and After Action Reviews (AARs) for continued en-

hancements/focus to the course.

In another change of venue, the Proponent Office incorporated an Executive Council before the Spring LVCTEPR at Ft. Leavenworth, KS. This proved to be another highly successful event with a wide range of military and civilian professionals in attendance. Topics/issues addressed included: the State of Simulation Operations; Career Progression; Update to AR 600-3; Initiating CP 36; Skill Identifier S7; Course Review/Projected Changes; Authorizations, Assignments & Accessions; Advanced Civil Schooling/Advanced Degrees; Training

With Industry; Proposed Simulation Conference; and Executive Council Working Groups.

As the Proponent Office, our Simulation Operations life cycle management is on track. The venues we provide for meetings and working groups best facilitate the way ahead for Simulation Operations because they involve a critical mass of experts who discuss, review, and develop recommendations in conjunction with the Proponent Office, leading to key decisions in all the life cycle functions we manage. We have had excellent attendance at our meetings/working groups and continue to have robust communication in other media.

We look forward to hearing from you soon.

- Mr. Roger Samuels
 Sim Ops Proponent
 Proponent Manager

From the Office of the Army G3-LTG Richard A. Cody (Cont'd)

"The JNTC exercise provides us insight into the future of what training environments will look like."

"This event would not have been possible if it were not for the dedicated work of FA57 officers..."

"Because of his understanding of both simulations and Battle Command Systems, the FA57 Officer must be able to accurately articulate commanders' requirements to meet the Army's needs."

Transformation is about creating a force that can better support the requirements of Combatant Commanders and deliver the right Army capabilities at the right time.

To achieve this objective we must develop and improve our Joint and Expeditionary Mindset. The keys to our success in this area are as follows: (1) the Army must train as it will fight, from a Joint and Expeditionary context; (2) the Joint and Expeditionary Mindset will focus and prepare the Army for operations in every corner of the globe; and (3) prompt, sustained and decisive land power must complement naval and air power to ensure a combat synergy that goes beyond the sum of the parts. An example of the work being done to accomplish this is the recently completed Joint Forces Command (JFCOM) horizontal training exercise. The JNTC exercise provides us insight into the future of what training environments will look like. JFCOM conducted a live-virtual-constructive (L-V-C) exercise that integrated an NTC rotation, a USAF Air Warrior exercise, a USMC 3-day Combined Arms Exercise "FINEX" at 29 Palms, and a United State Navy (USN) virtual exercise initiated from three vessels pier-side in San Diego. As a first step in what will be a series of events: it was

a successful exercise that demonstrated the capability that will continue to develop over the coming months and years. This event would not have been possible if it were not for the dedicated work of FA57 officers, as well as other modeling and simulation professionals, and countless others, who are working on a daily basis to create a truly Joint training environment.

In addition to transforming the way we think and organize, we are also transforming the equipment that we provide our Soldiers and leaders. The bridge between the current and future force lies within the combat multiplier that the Battle Command Systems provide our Army. As we develop the future Battle Command Systems, modeling and simulation (M&S) will be an integral part of the development and imbedded capability of the future systems. The future Battle Command Systems must allow commanders to conduct mission planning and rehearsal. Because of his understanding of both simulations and Battle Command Systems, the FA57 Officer must be able to accurately articulate commanders' requirements to meet the Army's needs.

The Army is at war, and the Combat Training Centers have done significant work to incor-

porate lessons learned from Afghanistan and Iraq into the units' training experience. Unfortunately, the simulations that help train Soldiers, units and leaders at home station do not accurately represent the contemporary operational environment (COE). As we look forward to the Future Combat System, we must take advantage of all of the ongoing work within the M&S community, and ensure that the lessons that are being learned during the current conflict are addressed. The FA57 must identify and bring forward the M&S needs of the total Army so that the current and future force have the necessary training capabilities across the full spectrum of conflict.

The FA57 officer is in a unique position to shape the current and future force. We are relying on your experience as operationalists and simulationists to assist the Army in providing combatant commanders a relevant and ready force today and into the future.

- LTG Richard A. Cody
Deputy Chief of Staff, G3
United States Army



Army Force Stabilization Changes

The Army has announced some major policy shifts in the past couple of months; specifically, the move to unit manning and the beginning of the transition to the Unit of Action (UA) and Unit of Employment (UE). Though neither effort is fully in effect yet, the Army is rapidly working on execution. Some of the key terms you will see in discussing “Stabilization” are:

(1) Home-basing

- Stabilizes Soldiers and families upon **initial** assignment at installations for about 7 years
- Provides stability and predictability for Soldiers and families
- Enables company level cohesion for all leaders and Soldiers
- Provides support for possible installation closures and realignments in the future
- It is important to note that Home-basing only applies to initial entry soldiers (LTs and CPTs), so it will not affect us as FA 57s are Career Field Designation (CFD) as a MAJ, and Home-basing will only occur at large installations

where there is enough force structure to accommodate the career progression requirements of all initial entry officers.

(2) Lifecycle (see figure 1.)

- Synchronizes Soldier’s tour with the unit’s operational cycle (36 months)
 - Minimizes Soldier moves/losses for deployed units
 - Provides cohesion for all levels of soldiers and leaders
- Lifecycle manning will affect “brigade-like” organizations that can tolerate short periods of ineffectiveness in order to maximize readiness over the longer period (36 months). A unit will now come together over a short period of time, go through a complete training cycle, and then be available for employment. This eliminates the “busting up” of a unit after a Combat Training Center (CTC) rotation – when the unit is at its peak readiness.

(3) Cyclic (see figure 2.)

Provides periodic replacements

by not interfering with training events (14 months)

- For Headquarters element, Combat Support and Combat Service Support units
 - Allows for continuous operations to occur without stopping to support replacement periods
 - Focuses training around replacement periods
- Cyclic manning limits personnel replacements to short windows to maximize readiness and reduce personnel turbulence.

These represent just a small portion of the efforts underway as the Army undergoes personnel transformation in support of Force Stabilization. I encourage you to call me with specific questions or review the Frequently Asked Questions (FAQ) posted at the Human Resources Command web site: <https://www.perscomonline.army.mil/opmd/Home>

- LTC Brian Bedell
Sim Ops Proponent
FA 57 Assignment Officer

"Stabilizes Soldiers & families upon initial assignment at installations for about 7 years."

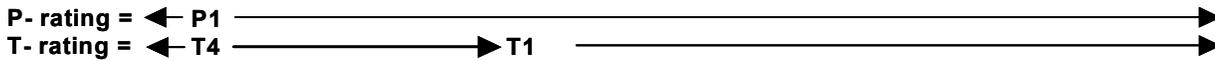


Figure 1.



Figure 2.

Supporting a Relevant and Ready Force: Lessons Learned from Simulation Support to Deploying Forces



Figure 1. Material Handling Equipment.

"...allowed staffs and units to conduct mission rehearsals for operations on any piece of Iraq that commanders desired."



Figure 2. Cargo Ship.



Figure 3. Janus depiction of Cargo Ship with top deck loaded.

As Fort Hood prepared for Operation Iraqi Freedom, simulations became an ever more important part of the training tool kit. The TRAC-DOC Analysis Center – White Sands Missile Range (TRAC-WSMR) Field Office exercised their initiative and sought resources to aid deploying units. The 4th Infantry Division, a digitally equipped unit, loaded their vehicles for shipment. Their initial area of operation was scheduled to be the Turkish-Iraqi border. TRAC-WSMR's Janus simulation had long been a tool participating in several federations used for digital training. In order to support staff training for the real world mission, the TRAC-WSMR team acquired terrain needed for that area of the world. Anticipating changes and desiring to give the unit flexibility, the team got Janus terrain for areas from the Turkish-Jordanian border all the way south to Kuwait. This allowed staffs and units to conduct mission rehearsals for operations on any piece of Iraq that commanders desired. The terrain was loaded onto Janus systems within the III Corps Janus facility for the 4th Infantry and 1st Cavalry Divisions, and also shared with the I Corps Mission Support Training Facility at Fort Lewis, WA. As the 4th Infantry Division missions changed, Janus was adaptable. Janus became a tool to keep units ready for operations relevant to their new situations.

Units of the Reserve Components faced another set of challenges. When the 453rd Transportation Cargo Transfer Com-

pany of the U.S. Army Reserve was mobilized, they faced the task of preparing for port operations in the remote port of Umm Qasr, Iraq. Their mobilization site was North Fort Hood, Texas, which supported requirements for individual skill training, but not for the Mission Essential Task List (METL) for Port Operations. The 75th Division, a U.S. Army Reserve training support division, had the responsibility for their training and turned to TRAC-WSMR for simulation support to build the port and the operational scenario.

The 453rd uses many junior officers and enlisted soldiers to perform their primary tasks of loading, unloading or trans-loading cargo onto ships, aircraft, rail, and road transportation vehicles. Because of earlier mobilizations, several of their more experienced personnel had been deployed with other units. As a result, the 453rd faced its first-ever mobilization with new personnel and many in the company who had not trained together as a unit. A Janus simulation training exercise provided a means to overcome this apparent obstacle.

A cargo transfer company has many systems in its inventory that had never previously been modeled in a Janus simulation. The unit had a variety of Material Handling Equipment (MHE) such as forklifts, cranes, and Rough Terrain Cargo Handlers (RTCH).

The Janus modelers built simulation entities to represent the new MHE systems and mod-

eled cargo ships with multiple decks and holds as shown in figures 2 and 3. Vehicles and other entities modeled in Janus can be designed with properties and attributes that exist on real equipment. Examples are fuel capacity, fuel status, and consumption rate. By printing a Janus file listing the simulated entities with names, the 75th Division staff could provide a manifest for each ship. The Janus team also modeled the physical environment of roads and railroads in and around the port. Using terrain files and satellite maps, they built the port of Umm Qasr (see figure 4 and 5), warehouse, airfield, urban areas, and the surrounding terrain up to Basra to allow movement of cargo forward.

The deploying unit also needed the simulation training completed within the two week time period before deployment. This posed a significant challenge for scenario developers to overcome.

The scenario was designed to emphasize platoon integrity and function. Simulated ships were loaded with all classes of military supply, to include water. Pallets of ammunition were loaded by Department of Defense Activity Address Code (DODAAC). During the simulation, vehicles were loaded on the ships and marked as unit sets, replacement vehicles for units in country, and unassigned vehicles. See figures 6 and 7.

Similar loads were prepared for loading onto C130, C141, C17, and C5 aircraft. See Figures 8 and 9. Before loading, all

Supporting a Relevant and Ready Force: Lessons Learned from Simulation Support to Deploying Forces (Cont'd)

vehicle entities in the aircraft simulation were checked to have reduced fuel and no ammunition on board. A plane from the Civilian Reserve Aircraft Fleet (CRAF) was modeled to simulate the loading and deployment of personnel.

The scenario included entities to represent neutral civilians, Non-Governmental Organizations, and terrorists. The database used the same on-screen symbol for all three types of personnel. This approach presented soldiers and leaders with real world problems and forced them to closely identify friend or foe.

Each soldier in the company was modeled in Janus by name from the unit roster, allowing the commander to know the location of each individual. From this the commander refined his reporting systems. During the training exercise, the company commander employed two platoons for unloading ships, one platoon transloading cargo and operating the railhead, and the last platoon for operating the airhead and unloading aircraft. This forced each platoon into a 24-hour schedule and required leaders to develop sleep and rest plans.

A particular training focus for the company commander was soldier water consumption in the desert environment. To exercise this leadership task, the Janus team adjusted the soldier entities so that water was a fuel for each soldier. If soldiers ran out of water, they were inoperable until they had been loaded on a vehicle and returned to the water trailer for

“refueling.” The entire company was actively involved in performing METL tasks through the Janus simulation to operate as they would expect to in Umm Qasr.

During the simulation run, the 75th Division played the role of the white cell. In this role they introduced external events into the simulation, such as maintenance failures in critical equipment. This replicated maintenance failures at crew or repair team level keeping the maintenance platoon involved in recovery, reporting, and repair of critical items such as forklifts and the RTCH.

As an additional training event, the company commander coordinated with the white cell for hostile action. The OPFOR “stole” a truck, loaded it with explosives, and crashed it into an aircraft being unloaded. The explosion not only caused casualties, but also destroyed a key piece of material handling equipment. The company responded to secure the area, treat casualties, and cross level equipment as it began the repair process. Soldiers became acutely aware that in addition to learning teamwork with new personnel for carrying out cargo functions, they were also in an area that could turn hostile quickly.

The 75th Division Observer Controllers used Janus in a replay mode as part of the After Action Review (AAR). This allowed each soldier to see the entire scenario and stop action, as needed, to elaborate on critical points of the exercise. Lessons learned from simulation support to deploying

forces include: simulations can familiarize units on terrain that they have not operated on; simulation supporters must be flexible and responsive; simulations can be used not only for combat operations, but also for combat support, and combat service support operations; units can adapt quickly with simulations when new courses of action are needed, particularly for Operations Other Than War; units can use simulations to enhance their mobilization training; training for hostile action within a civilian environment is one example where simulation can help; units can also use simulations to exercise internal logistics Tactics, Techniques, and Procedures (ITPs); future war-fighting campaigns dealing with the global war on terror and conflicts located in hostile areas will require units to maintain a focus not only on their task at hand, but their own security procedures as well; and U.S. Army units must be prepared to operate with U.S. Navy cargo ships and U.S. Air Force cargo transports.

Training continues to transform from the traditional level to one that includes participants from a Joint community. Exercises conducted in multiple locations, involving multiple agencies and events, must capture not only training objectives, but also the concepts and characteristics of joint warfare training. The use of simulations helps units to do this.

- Mr. Kevin Van Antwerp
Advanced Systems Technology



Figure 4. Satellite photo of Umm Qasr port.



Figure 5. Janus depiction of Umm Qasr.



Figure 6. Vehicles being off loaded from Cargo Ship.



Figure 7. Pallets of supplies.



Figure 8. Unloading supplies from C-130.



Figure 9. Unloading vehicles from C-17.

Army C4ISR and Simulation Initialization



The Army's Program Executive Office for Command, Control, and Communications, Tactical (PEO C3T)

"More importantly, the lines between models and simulations and C4ISR systems have now been blurred, especially in the areas of automated mission planning, intelligent agents, decision aids, course of action (COA) analysis, and mission rehearsal."

Introduction

Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems have certainly evolved from their inception as essentially stove-piped message generators backed by internal databases with electronic maps displaying geographical positions of known units and platforms (tracks). These systems are evolving to support full Network Centric Warfare (NCW) with networked weapon platforms and sensors that provide commanders and their staffs (and even individual combatants) with a complete and accurate Common Operational Picture (COP) of the battle space in near real-time. NCW will utilize a globally interconnected virtual single network, the DoD Global Information Grid (GIG), with end-to-end capabilities for collecting, processing, storing, managing, and disseminating information on demand to warfighters, policy makers, and support personnel. NCW rests on a foundation of telecommunications. Whereas maritime warfare networks dozens of ships and aviation networks hundreds of aircraft, ground force C4ISR is significantly more complex. Full network-centric ground combat currently networks tens of thousands of vehicles and, eventually, will scale to hundreds of thousands of individual soldiers. Deployment of net-centric land component forces requires the construction and certification of a telecommunications network (voice, data, video) equivalent to a sizeable city. Moreover, the telecommunication system must be completely mobile—constantly supporting the land

components as the forces maneuver across the battle space.

Modeling and Simulation (M&S) systems are also evolving from their inception as individual simulations with a local area network of a few client workstations connected to a server, to large federations of hundreds of workstations and servers exchanging information between many disparate simulation systems linked to many disparate service-specific and Joint C4ISR systems to provide a Joint National Training Capability (JNTC). More importantly, the lines between models and simulations and C4ISR systems have now been blurred, especially in the areas of automated mission planning, intelligent agents, decision aids, course of action (COA) analysis, and mission rehearsal. As the Army's FA57 Personnel Proponent recently stated in Volume 1 of this publication, "The Simulation Operations officer is becoming the expert in understanding and applying battle command and the associated technology. In truth, this combination of operational officer, simulationist, and expert in battle command is the model of the modern officer in a network-centric Army."

The Army C4ISR and Simulation Initialization Process

The first essential step in establishing and maintaining a complete and accurate COP is to initialize systems from a common set of complete, accurate, and synchronized data. The Army's Program Executive Office for Command, Control, and Communications, Tactical (PEO C3T), Central Technical Support Facility (CTSF), at

Fort Hood, TX, is responsible to produce and integrate data products to initialize digital C4ISR systems for units equipped with the Army Battle Command System (ABCS), including the Force XXI Battle Command Brigade and Below (FBCB2) system.

The Army has traditionally expended tremendous resources to ensure that the individual digital C4ISR systems within the ABCS start an operation or exercise with an accurate, complete, and consistent set of initialization data. When these C4ISR systems are integrated with a federation of simulations, the technical complexity is significantly increased. Both the C4ISR systems and the federation of simulations must be initialized from a common, accurate, and synchronized set of data before the start of an exercise (StartEx).

The Army's legacy C4ISR and simulation initialization process is complex, de-centralized, sequential, and primarily manual, which is time consuming, costly, and yields data inconsistencies between C4ISR systems and simulations. Normally, the C4ISR initialization products are produced first by a number of different Army contractor organizations. Current force deployment timelines require C4ISR initialization data products to be generated and distributed in a matter of days, whereas the legacy C4ISR initialization process requires a number of weeks or months. This process is followed by another time intensive and error prone process, as the

Army C4ISR and Simulation Initialization (Cont'd)

simulations and their C4ISR interfaces are manually initialized by simulation technicians from hard-copies or files on disks containing the C4ISR initialization data. Numerous C4ISR and simulation “test-fix-test” cycles and late changes typically ensue before the systems are ready for StartEx.

Army C4ISR and Simulation Initialization System (ACSIS)

To begin to meet these challenges, a collaborative effort led by the CTSF, with support from PEO-C3T, the Army Simulation-to-C4I Interoperability (SIMCI) Consortium, and the Defense Modeling and Simulation Office (DMSO) has developed the Army C4ISR and Simulation Initialization System (ACSIS—pronounced “Ace-sis”).

The objectives of ACSIS are to reduce C4ISR system and simulation initialization time and costs, reduce data errors and inconsistencies, and improve C4ISR and simulation interoperability. The technical approach of ACSIS is to establish an integrated database and tools to populate/update the ACSIS database from DoD authoritative data sources, maintain data integrity, and generate additional network configuration and addressing data to produce initialization data products for both the ABCS “system of systems” and a federation of simulations from a common set of complete, accurate, and synchronized data based on a particular mission-specific Unit Task Organization (UTO). The ACSIS Authoritative Data Source Update Process (AADSUP) populates and updates the ACSIS

database with authoritative force structure Modified Table of Organization and Equipment (MTOE) data from the U.S. Army Force Management Support Agency (USAFMSA), Global Status of Resources and Training System (GSORTS), and the USAMC Logistics Support Activity (LOGSA). The ACSIS database also includes System Architecture (SA) data from the PEO C3T, Office of the Chief Engineer (OCE) (formally called the Force XXI Integration Office). Today, the ACSIS database does not include all the data required to completely initialize any one C4ISR system or simulation; however, it does include the significantly important unit order of battle and electronic order of battle data common to all.

The ACSIS Tool suite includes tools for users to remotely access the ACSIS database and generate initialization data products. Typical users of these tools include C4ISR or simulation database managers. The ACSIS Tool user extracts data from the ACSIS database and generates a mission-specific UTO. Based on this mission-specific UTO and the associated organizational System Architecture (SA), the user modifies and adds additional network configuration and addressing data to complete the initialization data set for the upper and lower Tactical Internet (TI) networks. From this data, the ACSIS Tool user generates specific C4ISR initialization data products. Also, from this same data set, the ACSIS Tool user generates initialization data products for simulations and their C4ISR interfaces. The ACSIS Tool user

can produce these simulation initialization data products in a native format that can be imported directly into the simulation’s normal scenario generation tools for the simulation technician to add or modify the data as required. Another option, as opposed to providing files in the simulation’s native format, the initialization data products can be produced in the universal data interchange format of XML for the simulation to import and parse as required. The end result is that both the C4ISR systems and the simulations are initialized from a common, accurate, and synchronized set of data based on a particular mission-specific UTO.

ACSIS Today and Tomorrow

Although development continues, ACSIS is an operational system today in the CTSF at Fort Hood, TX and has already achieved success in its objectives to reduce C4ISR system and simulation initialization time and costs, reduce data errors, and improve C4ISR and simulation interoperability. Today, the ACSIS can produce C4ISR initialization data products for the ABCS 6.3 Joint Common Database (JCDB) and the Command and Control Registry/Lightweight Directory Access Protocol Data Interchange Format (C2R/LDIF). Work is in progress to interface.

Tactical Internet Management System (TIMS) automated tools with the ACSIS database

(cont'd on page 14)



Army C4ISR and Simulation Initialization System (ACSIS)

"The objectives of ACSIS are to reduce C4ISR system and simulation initialization time and costs, reduce data errors and inconsistencies, and improve C4ISR and simulation interoperability."

Army C4ISR and Simulation Initialization (Cont'd)

"The ACSIS focus for simulations is to complete the limited initialization requirements for the Army Constructive Training Federation, ACTF (DIS), including the Joint Conflict and Tactical Simulation (JCATS)."

to generate initialization data products for ABCS systems on the upper TI and the FBCB2 systems on the lower TI. The initial FY03 focus for initialization of simulations was on the Run Time Manager (RTM) of the Corps Battle Simulation (CBS), as well as Janus, FireSim XXI, and other components of the Digital Battlestaff Sustainment Trainer (DBST).

AC SIS was used to produce C4ISR initialization data products (i.e., JCDB) for the units deployed to Operation Enduring Freedom and Operation Iraqi Freedom (especially, 1st CAV / 4th ID), and simulation initialization data products (i.e., RTM) to support their mission readiness training exercises (4th ID Warfighter Exercise 02 and Victory Scrimmage 03).

The C4ISR focus for ACSIS in FY04 is on completing ABCS 6.3 initialization, and on the initialization requirements of ABCS 6.4, including FBCB2 and Blue Force Tracking (BFT). The ACSIS focus for simulations is to complete the limited initialization requirements for the Army Constructive Training Federation, ACTF (DIS), including the Joint Conflict and Tactical Simulation (JCATS). As time and resources are available, ACSIS will also focus on the initialization requirements of the ACTF (HLA). Work is in progress with PM WARSIM and OneSAF to identify how ACSIS can best be leveraged in the development of these simulations.

We see ACSIS evolving into

the Army Initialization Capability (IC) as part of the GIG Enterprise Services (GES), playing an important role in the integrated, net-centric, Joint Command and Control System (JC2) architecture. The objective IC would include distributed data repositories with common tools that can be used by warfighters to quickly and accurately initialize C4ISR and integrated simulations to plan, prepare, and execute their warfighting and training missions.

- Bruce W. Carlton
Army Research Laboratory
The University of Texas at
Austin



The Soldier's Creed

I am an American Soldier.

I am a Warrior and a member of a team.
I serve the people of the United States and live the Army Values.

WARRIOR ETHOS

I will always place the mission first.
I will never accept defeat.
I will never quit.
I will never leave a fallen comrade.

I am disciplined, physically and mentally tough, trained and proficient in my Warrior tasks and drills.

I always maintain my arms, my equipment and myself.

I am an expert and I am a professional.

I stand ready to deploy, engage, and destroy the enemies of the United States of America in close combat.

I am a guardian of freedom and the American way of life.

I am an American Soldier.



Simulation-Based BUCS Training for the AH-64A Apache

Unlike other fielded Army helicopters, the AH-64 Apache has an emergency back up, electro-hydraulic, fly-by-wire system available to the crew in the event of a jammed or severed flight control. This back up control system (BUCS) allows the crew to bypass damaged mechanical flight controls and safely land the aircraft. The BUCS can be found on both A- and D-model Apaches.

Prior to 2001, BUCS training for the A-model Apache consisted of paper-based classroom instruction. In response to a series of incidents and mishaps involving the AH-64A, the Army determined that pilots need enhanced, hands-on training in the detection and diagnosis of flight-control problems and correct operation of the flight controls when the BUCS is engaged. It is precisely this kind of training that cannot be performed in the helicopter for reasons of safety and cost. Emergency procedures are a quintessential example of the kind of dangerous and expensive tasks for which simulator-based training is uniquely suitable. Apache pilots now receive training using the only AH-64A simulator currently in the Army inventory capable of simulating the BUCS.

The simulator is located at the Army Research Institute for the Behavioral and Social Sciences (ARI) at Fort Rucker, AL., and it is called the Simulator Training Research Advanced Testbed for Aviation (STRATA). The purpose of the training is to familiarize Apache aviators with the con-

ditions that require the use of the BUCS, how such conditions can be detected and, most importantly, what must be done to control the aircraft and get it safely on the ground.

A memorandum of agreement among the Apache Program Manager's Office (PMO) at Redstone Arsenal, AL., the Aviation Training Brigade (ATB) at Fort Rucker, and ARI established the formal mechanism whereby BUCS training is delivered to every student in the Apache Aviator Qualification Course (AQC). The PMO provides funding plus Apache expertise, while the ATB provides students and instructor pilots. ARI provides simulator time, engineering expertise, operations and maintenance, and expertise in the Apache BUCS.

As of February 2004, 854 Apache pilots have received BUCS training. To date, no student has missed training as a result of simulator failure, power outage, or personnel unavailability. Another advantage of simulator-based training is system reliability.

Simulator

The STRATA training device is a fixed-base, full-mission simulator for the A-model Apache. The pilot and copilot/gunner (CPG) cockpits were taken from an actual aircraft, the rest of which was scrapped. CAE Corp. designed, built, operates, and maintains the Apache research simulator at the STRATA facility. The simulator, which boasts a modular design capa-

ble of software modification, uses a hydraulic digital control loading system to simulate all of the flight-control characteristics of the AH-64A, including BUCS.

A G-seat and active five-point shoulder harness provide acceleration, deceleration, and motion cues. All controls, instruments, and displays are functional and integrated with each other. Both cockpits are provided with three 100-inch, rear projection visual displays providing each station with a 180-degree horizontal by 45-degree vertical out-the-window field of view. What the aviators see out their windscreens is a highly detailed, geo-specific terrain database rendered by three CAE Medallion™ image generators, which are capable of presenting 16,000 polygons per frame at a rate of 60 frames per second.

BUCS Training Procedures and Strategy

Currently, BUCS training is "familiarization" training only. There are no recorded tests of performance. AQC students are provided with BUCS instruction in order to expose them to potential flight-control malfunctions and the accompanying corrective procedures. Students arrive for the BUCS training after having already logged time in both the Cockpit Weapons and Emergency Procedures Trainer and the actual helicopter. They also receive classroom instruction in the BUCS from ATB academic instructors. This prerequisite flight line and class



Simulator

"Emergency procedures are a quintessential example of the kind of dangerous and expensive tasks for which simulator-based training is uniquely suitable."



Future Directions

(cont'd on page 16)

Simulation-Based BUCS Training for the AH-64A Apache (Cont'd)



AH-64 Apache

"The pacing of instruction depends upon the speed at which the crewmembers demonstrate through cockpit performance that they understand what they are being taught."

room experience is important, allowing the students to concentrate on the detection of a malfunction and the appropriate course of action, while continuing to fly the aircraft.

Each BUCS training period lasts 90 minutes and "stick buddies" train together. They first perform a by-the-book BUCS test. Each student, in turn, picks the aircraft up to a hover and "flies" a traffic pattern to a landing. This is done to familiarize students with the simulator and get them into a flight-oriented frame of reference.

After the warm-up, students participate in a series of instructional scenarios during which all the training points required by the program of instruction are presented. Training points include jammed controls, severed controls, crew contention, hydraulic system malfunctions, related warning indicators, operator actions, and feedback for both cockpits. In all, the crew per-

forms 50 tasks in both the pilot and CPG stations.

The instructional strategy used is the classic "crawl, walk, run." At the beginning of the training period, the instructor alerts the crew to what malfunction is going to be invoked, describes its identifying features, describes what should be done and in what order, and then, after invoking the malfunction from the instructor interface console, walks the crew through it step by step. Verbal instructions are provided before and during the training event. Feedback is provided after the event, along with the opportunity for questions.

Instruction proceeds in this fashion, training point by training point. As the crew's mastery of the BUCS improves, the pace speeds up, and the criterion level of performance expected by the instructor rises. By the end of the training period, the instructor merely invokes malfunctions of whatever kind, at will and with

no warning, and the crew detects the malfunction and reacts appropriately with a minimum of interference. The pacing of instruction depends upon the speed at which the crewmembers demonstrate through cockpit performance that they understand what they are being taught. Crews that are quick to learn may receive additional practice or increased flight training.

Future Directions

In 2001 the Army awarded a contract to CAE to upgrade six Apache Combat Mission Simulators (CMSs) worldwide. CAE has proposed upgrading them to support BUCS training that meets or exceeds the training currently provided in the STRATA device. If funded, Apache aviators in CMS simulators worldwide will be able to receive BUCS training. *For further information about BUCS training at ARI contact Michael Couch at (334) 255-1984 or couchm@rwaru.army.mil.*

USAR Simulation Operations

Human Resources Command-St. Louis contains two entities that directly handle USAR FA 57 (Simulation Operations) issues and concerns. The first is the Personnel Proponency Office, which deals with human resources policy and career development issues related to the Simulation Operations field in the Army Reserve. The second is the FA 57 Career Management Officer, who manages the life cycle functions of Active Guard Reserve,

Troop Program Unit, Individual Mobilization Augmentees, and Individual Ready Reserve individuals.

Along with the FA 57 Proponent Office, the above elements have recently addressed such issues as the Simulation Operations Course, future professional development opportunities available to the USAR FA 57 population, implementation of future force structure changes that affect USAR

Modified Table of Organization and Equipment (MTOE) units, and career progression within the Army Reserve.

Anyone who would like more information on "the way ahead" for the Army Reserve within Simulation Operations should contact the USAR FA 57 Proponency representative, Major Jeffrey Foundas, jeffrey.s.foundas@us.army.mil, DSN 892-0692, or COM 314-592-0000 ext 2429.

For information on personnel issues, contact the FA 57 Career Management Officer, Major Bradford Whitney, bradford.o.whitney@us.army.mil DSN 892-3296, or COM 314-592-3296.

- MAJ Jeffrey Foundas
USAR, HRC St Louis
FA 57 Proponent Rep.

Third United States Army Battle Simulation Center Support to Operation IRAQI FREEDOM (OIF)

In 1999, the Third U.S. Army fielded a deployable Battle Simulation Center (BSC), with the intent to provide a multi-functional stimulation feed to the various C4I systems used by the battle staff in preparation for executing the combat operation's plan (OPLAN) for the defense of Kuwait and subsequent attack into Iraq. In 2000, the organization fielded two fully digitized command posts—the LUCKY Forward Command Post, the larger of the two, and the Early Entry Command Post (EECP). The Forward Command Post houses the majority of the intelligence and operations staff, plus selected teams from the remainder of the general and special staffs. The EECP is the smaller, tactically mobile command post, focused more on the command and control of current operations. Both command posts are equipped with digital C4I systems – the All Source Analysis System (ASAS) (intelligence); Global Command and Control System (GCCS) and Global Command and Control System-Army (GCCS-A) (command and control); ADSI and AMDWS (air defense).

To stimulate these two command post C4I systems, the Digital Battlestaff Sustainment Trainer (DBST) was chosen. The DBST consisted of four confederated simulations – Joint Conflict and Tactical Simulation (JCATS), which presents the ground maneuver picture and flies close air support; the Extended Air Defense Simulation (EADSIM), which simulates tactical ballistic missile (TBM) launches,

detection, and intercept by air defense missiles, as well as flies air reconnaissance and air interdiction; the FIRESIM, which simulates the tube artillery, counter-fire radars, and stimulates the AFATDS C4I system and the VISION XXI, which is used as a mission rehearsal and after action report tool. All these systems feed their outputs to the Enhanced Tactical Simulation Interface Unit (ETSIU), which formats and transmits the simulation data into the command posts' C4I systems.

From 1992, until the commencement of the LUCKY SENTINEL exercises in the late 1990's, the focus for Third U.S. Army internal staff and selected down trace unit training was the defense of Kuwait from Iraqi aggression. In the late 1990s, this training culminated into an annual exercise known as LUCKY SENTINEL that trained Third U.S. Army and Kuwaiti staffs in the defense of Kuwait. These exercises were simulations driven by and were run in conjunction with the Joint Warfighting Center (JWFC) using the Joint Theater Level Simulation (JTLS) confederated with several Third U.S. Army DBST simulations. This configuration provided stimulation feed to the various C4I systems. In 2002, LUCKY SENTINEL was executed exclusively with Third U.S. Army's full DBST suite of simulations in support of Kuwaiti training objectives, while the Third U.S. Army staff remained focused on command and control of Operation ENDURING FREEDOM in Afghanistan.

In 2002, the training focus changed towards the liberation of Iraq. OPLANS were written, revised and presented to the Third U.S. Army and JWFC simulations modelers to build a series of rehearsal exercises. Many conferences preceded the exercises in which details of the OPLAN were refined. Simulations personnel attended the Operations Planning Group (OPG) meetings to better understand the planning dynamics and the Commanding General's intent. Being firmly embedded in the planning cycle paid numerous dividends in building the database. An internal staff exercise called LUCKY WARRIOR 03-01 was executed in November 2002 in CONUS and Kuwait. It was the first test of the Operation IRAQI FREEDOM (OIF) database and scenario and OPLAN. The Third U.S. Army DBST simulation drove this exercise.

In December 2002, the JWFC, using their JTLS confederated with several Third U.S. Army simulations, drove Exercise INTERNAL LOOK, which involved U.S. Central Command's (CENTCOM) headquarters, CENTCOM component staffs, and selected Allied/Coalition staffs. Again, the OPLAN was played and improvements to it were made. Third U.S. Army staff was further drilled in the use of the digital C4I systems with which they would command and control the operation into Iraq. A final simulations driven rehearsal of the OPLAN was held in February 2003 in

(cont'd on page 18)



Always First—Always Ready

"From 1992, until the commencement of the LUCKY SENTINEL exercises in the late 1990's, the focus for Third U.S. Army internal staff and selected down trace unit training was the defense of Kuwait from Iraqi aggression."

Third United States Army Battle Simulation Center Support to Operation IRAQI FREEDOM (OIF) (Cont'd)



The 514th supports the command and control elements of the 82nd Airborne Division. Pfc. Price is attached to the 82nd Signal Battalion deployed in support of Operation Iraqi Freedom. U.S. Army photo by Sgt. Kyran V. Adams

CONUS, Kuwait, and other locations in the Middle East. This exercise, LUCKY SENTINEL 03, trained the coalition staff in successful command and control of the forces to be used in Iraq. Different variants of the OPLAN were played to test various combat choices available to the forces in Iraq. Digital messages were generated in a volume that would approximate the flow during actual combat operations. Problems occurred and solutions were found. At the end of this exercise the Third U.S. Army staff (serving as the core of the Coalition Forces Land Component Command or CFLCC) met the Commanding General's training objectives and were certified as trained to perform their wartime command and control mission. Just over a month later, OIF was executed and Coalition Forces displayed a remarkable agility in reading the battlefield and imposing

their will on an opponent who presented a challenging – though ultimately ineffective – defense. The Third U.S. Army BSC was fully integrated into the war planning process. Actual war planning scenarios were written into a family of simulations based exercises that better prepared the Third U.S. Army (and CFLCC) staff in the successful execution of OIF. It was truly an effective and thorough integration of operations planning and training.

During and after OIF, the Third U.S. Army BSC has been very active in support of CENTCOM's Peacetime Engagement Strategy. Third U.S. Army BSC has supported internal and external simulation driven events. These include several command post exercises (CPX) throughout the Middle East, to include a CPX conducted in the Kingdom of Saudi Arabia (reference

[FORSCOM Analysis Modeling and Simulation Newsletter Edition 4, February 2004](#)), Jordan, and exercise planning for BRIGHT STAR and Qatar. The CPXs in Saudi Arabia and Jordan involved several other simulations resident in the Third U.S. Army's BSC. These include Janus and the Brigade and Battalion Simulation (BBS). Internally, the BSC has been actively supporting and sustaining the skill sets of the battlestaff and representing the command's simulation interest during the recent Mission Readiness Exercise (MRX) held at Fort Hood, Texas. These missions, as well as operating and deploying diverse models and simulations, makes Third U.S. Army's BSC unique among Army-wide simulation centers.

- MAJ Robert Stewart
FA57 Officer
Third U.S. Army



The town's water supply is contaminated, so the U.S. 422nd Civil Affairs Battalion coordinated the delivery of thousands of gallons of purified water. The 422nd is in Iraq in support of Operation Iraqi Freedom. U.S. Army photo by Staff Sgt. Kevin P. Bell



NU' MANYAH, IRAQ (April 2, 2003) - Cpl. Anthony Murphy from Portland, Ore.; and Sgt. David Leonard from San Diego, Calif.; assist 3/4 Lima Company as they secure a military compound outside the town of An Nu' manyah in support of Operation Iraqi Freedom. U.S. Marine Corps photo by Gunnery Sgt. Erik S. Hansen

An Interactive Intelligence Training Tool for Every Soldier Based on Commercial Game Technology

Based upon the threat environment we are seeing today, our soldiers are expected to perform increasingly unique and unconventional roles and missions on a regular basis. We must train them not only to engage and destroy threats, but also to interact with their environment to gain and use intelligence. The concept of an interactive Intelligence training tool was born from our current and immediate requirement to train every soldier as a sensor. The Weaponeer is a simple rifle marksmanship simulation that has been used for years to teach fundamentals prior to shooting live ammunition. The Engagement Skills Trainer (EST) is an advanced, “multi-player” version of the Weaponeer. The Army needs an Intelligence Skills Trainer (IST).

Lessons learned from current operations have shown us that non-Intel soldiers need training in the fundamentals of intelligence gathering and reporting. Human Intelligence (HUMINT) in a full-spectrum environment is a key requirement today. Soldiers are learning their new duties as intelligence collectors (sensors) in theater and “on the job” – that’s unacceptable. Fundamental observation and reporting techniques should be trained early and often at all levels and within all branches and specialties. All soldiers must learn what to look for and what to report; this information is vital to the “Intel fight.”

Commercial-Off-The-Shelf (COTS) game technology offers a potential capability to train soldiers in these funda-

mentals, while having fun at the same time. The “fun factor” has limits, however, as it is useful only if actions can be reviewed, discussed or graded in some fashion post-execution. Soldiers may enjoy training their brains for the unconventional environment they will face before, and maybe even during, deployment if the game is built correctly and allows for advancement or some type of “award.” Training is the goal with all it entails. Live training is critical to preparing our soldiers for deployment, but it has limitations. Can we train every soldier to be a sensor without simulations? Probably not. This creates a big challenge.

COTS games are a likely answer if we are careful and realize the capabilities and limitations of this medium. We look at COTS games because they provide a better, faster, more flexible platform than traditional software acquisition. The databases and algorithms already exist to some extent. Hardware is obviously inexpensive, plentiful and readily available.

The Institute for Creative Technologies (ICT) is a collaborative effort between the Army, The University of Southern California and the entertainment industry. Their goal is to create the Experience Learning System (ELS), which “provides the ability to learn through active, as opposed to passive, systems.” The ICT has developed two combat games, “Full Spectrum Command” and “Full Spectrum Warrior,” in an effort to leverage commercial game applica-

tions that are easily implemented with inexpensive hardware as training tools. The project can be reviewed at http://www.ict.usc.edu/display.php?bd=proj_games :

“The first game, Full Spectrum Command, was a PC-based company command simulator completed in February 2003. As the commander of a U.S. Army light infantry company, the student must interpret the assigned mission, organize his force, plan strategically, and coordinate the actions of about 120 soldiers under his command. The second game, the E3 Games Critic Award-winning Full Spectrum Warrior, was developed for the Microsoft Xbox. It places the student in the role of a light infantry squad leader. The nine member squad is the smallest maneuver element in the US Army. The goal is to complete missions...and come home safe”. – Institute for Creative Technologies website

Designing Full Spectrum Warrior for the X-Box makes it cheap and relatively deployable. ICT states that it: accurately represents U.S. Army battle drills and small unit tactics; has multiplayer capability, an After Action Review (AAR) Assistant featuring “Explainable Artificial Intelligence (AI);” and allows for user-level editor for scenario customization. There are some challenges with this medium, however. Specifically, issues of proprietary licenses arise. Furthermore, the capabilities of Artificial Intelligence to rigorously provide the needed level of feedback, similar to a human Observer/Controller or subject matter expert (SME), are subject to debate.



The latest screenshots of Full Spectrum Warrior show incredible attention to detail, from uniforms, weapons, equipment and squad formation and tactics right down to casualties being borne away from the combat zone by medics.

“COTS games are a likely answer if we are careful and realize the capabilities and limitations of this medium. We look at COTS games because they provide a better, faster, more flexible platform than traditional software acquisition.”

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An Interactive Intelligence Training Tool for Every Soldier Based on Commercial Game Technology (Cont'd)



In the U.S. Army's first official computer video game for civilians, players will learn what it takes to be an American soldier in and out of combat. (U.S. Army)

The "America's Army" game project has been developed by a team at the Naval Post-Graduate School (NPS) primarily as a recruiting tool. "America's Army" is a popular PC-based game designed to recruit, rather than train, Soldiers. Information on this game can be reviewed at <http://www.thearmygame.com/pressreleases/distributes.html> :

"Designed to communicate information about Army opportunities, adventures, challenges and training, the free game CD has been shipped and is starting to appear at local Army Recruiting stations, ROTC detachments and Army events listed at www.americasarmy.com and www.goarmy.com." - America's Army website

These Army projects have immense potential for further development as an intelligence training tool for soldiers. It is very common for successful games to release additional scenario software as an add-on to the original game.

The ICT and NPS projects are not the only potential platforms for an interactive Intelligence training capability. The United States Marine Corps has developed several COTS games for training. Numerous game-development firms have the capability to develop a stand-alone game. However, leveraging on-going game projects would likely be the quickest, although not necessarily the cheapest, means of realizing a COTS-based Intelligence training tool.

If we get beyond the combat shooter games based on ma-

neuver and attrition for "points," we can imagine how a COTS game could be useful for fundamental Intelligence training. For example: A particular commercial game may require one to obtain a key to unlock a door for the information (or treasure) needed to continue the fight (or "adventure"). If you kill or otherwise disable the key-holder, you lose. Or, you have to deal with the monster guarding the door. In another game, one must use one's wits to get the key, based on text questions or your character's wealth and/or weapons (in fact, Commanders in Theater have a sum of money to work with the locals, and they have not been trained on this type activity at NTC or in BCTP exercises). Wrong answer and you lose! Then you have to "start over," or revise your approach and spend more treasure. Imagine a critical review of why you died, troops were killed or the mission wasn't accomplished due to a failure to respond to, or forward, some vital information? Take it down to the fire team level. Imagine this based on actual Tactics, Techniques and Procedures (TTP) as well as lessons learned in a particular Area of Responsibility (AOR). Branch-and-sequel algorithms beyond attrition and maneuver exist in many commercial games.

Implementing the concept of fundamental observation, collection and reporting techniques, while conducting combat operations, will provide numerous challenges for training soldiers, but they're not insurmountable. The complexity lies in the fact that we need

them to understand how to fuse the information they are gathering with the intelligence coming down to them from higher headquarters. Soldiers must learn the importance of the "big picture" to them and their unit.

The fundamentals should be the main focus, at least initially. Basic cultural awareness and reporting standards should be key factors, not the higher aspects of analysis or other Intelligence-specific capabilities and techniques.

Naturally, various technical criteria must be identified before development can begin. Ideally, this application will be built for maximum flexibility so we can rapidly build different scenarios, or training events, in a variety of environments. The tool should allow for single-player training (for a soldier in their quarters) or multi-player with instructor input (for mission rehearsal or classroom instruction). If on-line training is required, an Internet-based system could be considered. Army Knowledge Online (AKO), rather than an open, Internet method is another possible solution. We've already built the login/password system via AKO. We could create an on-line, Army Internet-based player group with one "coach/observer controller" (SME) group network per game-play "unit." Soldiers would play, learn and receive critiques and training.

(cont'd on page 21)

"Implementing the concept of fundamental observation, collection and reporting techniques, while conducting combat operations, will provide numerous challenges for training soldiers, but they're not insurmountable."

An Interactive Intelligence Training Tool for Every Soldier Based on Commercial Game Technology (Cont'd)

Of course, development must be kept unclassified. Non-Intelligence and Intelligence soldiers alike are the primary training audience. TRADOC should take the lead for this project while the branch proponents provide SME support. To ensure the viability of this system, the U.S. Army Intelligence Center at Fort Huachuca must play a key role. Furthermore, we will require HUMINT and Special Operations Forces (SOF) SME support to work closely with software engineers for “storyboarding” during the game’s development. The Combat Arms branch proponents should also provide support. It’s possible the USMC could also have a role to play. Our Joint-level ground component partners might benefit

from the same training capability.

If we really expect to train soldiers and leaders in the fundamentals of Intelligence and their critical role in the process, we should explore every avenue that will get us to that point. Not in 2010, but now... or at least as soon as possible. An interactive game – an Intelligence Skills Trainer – leveraging available COTS game technology should be explored as a reasonable means of getting the job done. It may save lives. It will take some serious effort and resources.

- MAJ Dan Ray
M&S Officer
HQDA, DCS-G2



America’s Army

“An interactive game – an Intelligence Skills Trainer – leveraging available COTS game technology should be explored as a reasonable means of getting the job done.”

What is the Role of the FA57 ? (Con’t)

The FA57 officer serves as the Commander’s SME for linking embedded systems, LVC and Battle Command Systems to create the necessary environments for leader, staff, soldier and unit training. During military operations, the FA57 officer serves as the Commander’s SME on mission planning, course of action development, mission rehearsal and after action reviews, ensuring that the collaborative tools, embedded simulations and Battle Command Systems are all integrated within the reach-back network. Additionally, FA57 officers assist in the development of current and future simulations and Battle Command Systems.

As many of you know, this was posted on the reflector and has resulted in many e-mails that have been thought provoking. The result is that you are shaping the message that we provide to the Army leadership, and are allowing us to make sure that our force structure accurately reflects the current and future needs of the Army.

In the near future, the proponent office will publish a white paper that outlines the roles, functions and development of FA57s based on your inputs.

We look forward to your continued comments and suggestions. If you are in the D.C.

area I look forward to meeting with you and discussing the current state of FA57.

- MAJ Favio Lopez
Sim Ops Proponent
FA57 Proponent Officer

“The FA57 officer serves as the Commander’s SME for linking embedded systems, LVC and Battle Command Systems to create the necessary environments for leader, staff, soldier and unit training”

MOUT Summit III

Progress Toward Future MOUT Modeling and Simulation (M&S)



"The MOUT FACT is the Army's current mechanism for implementing a strategy to develop a coherent, cohesive, and credible suite of tools for MOUT analysis."



Fort Lewis Urban Warfare Site

The Army Materiel Systems Analysis Activity (AMSAA) and the US Army Training and Doctrine Command (TRADOC) Analysis Center (TRAC) in Monterey, California hosted the Third Annual Military Operations in Urban Terrain Summit (MOUT Summit III) at Aberdeen Proving Ground, Maryland, from 16 - 18 September 2003. The theme of this year's Summit was "Progress Toward Future MOUT M&S."

Over 100 analysts, researchers, and multi-service military leaders braved the threat of Hurricane Isabel to attend this third iteration of the MOUT Summit that has continued to grow in size and scope each year.

Mr. Vernon M. Bettencourt, then Director of Analysis and Chief Information Officer for the Deputy Chief of Staff G-3, provided the keynote address entitled "Headquarters, Department of the Army (HQDA) Perspective on Progress toward Future MOUT M&S".

Other senior leaders and researchers in attendance included Mr. Walter Hollis (Deputy Undersecretary of the Army for Operations Research – DUSA-OR), Dr. James Cooke (DUSA-OR Office), Mr. W. Forrest Crain (Technical Director, Center for Army Analysis – CAA), Mr. David Shaffer (Director, AMSAA), Dr. Richard Ellefsen (Professor, San Jose State University), COL Phil DiSalvo (Deputy Director, AMSAA), and COL George Stone III (Deputy Director, Army Model

and Simulation Office – AMSO).

Plans for the first MOUT Summit in 2001 developed after AMSAA completed an initial assessment of MOUT M&S shortfalls for the MOUT Focus Area Collaborative Team (MOUT FACT). Since then, much of the Army M&S community has developed and implemented new M&S methodologies in support of analyses leading to the Future Combat Systems Milestone B Decision (FCS MS B) in May 2003.

Current military operations such as Operation Iraqi Freedom (OIF) underline the importance of a better understanding of MOUT. AMSAA has received a number of OIF "quick response" analysis requests wherein the work of the MOUT FACT served as a source of information providing the analysts with a better understanding of MOUT challenges. In a similar spirit, MOUT Summit III served as an opportunity for the community to share updates on the present state of MOUT M&S and to explore future needs.

Developers of various force-on-force combat simulations shared their progress and their future plans with regard to MOUT M&S. Additionally, team leaders from the eight funded FY03 MOUT FACT projects provided their results to date. The agenda also included updates on the status and plans for MOUT M&S in several functional areas including several efforts of special interest. Feedback from participants helped to encourage

improvements to MOUT M&S thereby enhancing credibility.

At the Summit, presenters addressed a broad spectrum of MOUT M&S topics including:

- MOUT Perspectives of Army Analysts
- USMC Analytic Perspectives on MOUT
- Macro-level MOUT Analysis
- Dismounted Battlespace Battle Lab
- Measuring the Effects of Urban Operations
- MOUT Present and Future Portrayal in OneSAF
- HQ TRADOC OneSAF TPO Perspective on Progress and Future Needs
- MOUT Modeling of Small Unit Operations
- MOUT Representation in Vector-in-Commander (VIC)
- How COMBATXXI will impact MOUT Modeling
- Present and Future Portrayal of See-Thru-the-Wall and Heartbeat Sensors
- Acoustic Measurements and Modeling in Urban Terrain
- Smart Target Model Generator Interoperability for MOUT Applications.
- Data Mining Techniques for MOUT Command and Control (C2)
- Urban Research Perspective on MOUT M&S Progress
- Standardized Urban Templates
- Standardized Urban Targets, AMSAA Perspective
- Standardized MOUT Targets for Assessing Building Damage

MOUT Summit III

Progress Toward Future MOUT Modeling and Simulation (M&S) (Cont'd)

- Blast and Penetration Damage to Urban Walls
- ERDC Structural Weapons Effects API Update
- Future MEVA Development in Support of Army MOUT Applications

The MOUT FACT is the Army's current mechanism for implementing a strategy to develop a coherent, cohesive, and credible suite of tools for MOUT analysis (See the MOUT FACT website at <https://www.moutfact.army.mil>). To that end, while force-on-force combat simulations are obviously critical, it is important to maintain progress in the areas of understanding basic phenomena, developing engineering and item-level algorithms as well as force-on-force algorithms, and generating/gathering validated data to support all of the above. MOUT Summit III served as a

venue for the wider community to examine its progress toward development of a MOUT analysis tool set and to identify areas of possible collaboration among organizations.

At this year's Summit, representatives for the eight MOUT FACT FY03 funded projects presented information on the following topics:

- Integration of Urban Characterization, Munitions Effects, and Threat Assessment for Movement Planning in Urban Environments (Footprint to Pathfinder)
- Enhancement of the Mobility Modeling Suite to Predict Vehicle Performance Over Roads Degraded by Urban Debris and Cratering
- Rapid Generation of Syn-

- thetic Urban Environments and Infrastructure for Modeling and Simulation Applications
- Modeling Target Acquisition, Tracking and Loss in MOUT using Graphs
- AMSAA MOUT RF Propagation Model
- Weapons Effects in Urban Terrain
- Development of a Human Centered Target Acquisition and Engagement Methodology
- MOUT Search and Discrimination in the IR and Visible

MOUT Summit III was a great success and served as a valuable forum for information sharing, team building, collaboration, and the evolution of fresh insight into the challenges of improving urban operations representation in military M&S. MOUT Summit IV is scheduled for September 2004.

"Developers of various force-on-force combat simulations shared their progress and their future plans with regard to MOUT M&S."

- LTC Tom Cioppa
TRAC- Monterey
- MAJ John Willis
TRADOC Analysis Center
- Ms. Linda Kimball
AMSAA



As a military unit prepares to enter and clear a building in Shughart-Gordon, the MOUT facility's 29-building mock city, all of the action is captured with either a Sony DC-30 or DC-50 analog camera affixed with a Pelco zoom lenses and mounted to a telephone pole.

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It's About Warfighting



<i>EVENT</i>	<i>DATE</i>	<i>LOCATION</i>
SSC Board	5-29 Apr 04	HRC
Sim Ops/CPOF/FBCB2	27-30 Apr 04	Pentagon (2d Corridor)
Armor Conference	15-20 May 04	Ft. Knox, KY
CFD Board (YG95)	14-24 Jun 04	HRC
Sim Opns Course	7 Jun-16 Jul 04	Ft. Belvoir, VA
COL Army Board	29 Jul-19 Aug 04	HRC
FA57 ACS Board	Aug 04	HRC
Ulchi Focus Lens	Aug 04	Korea
CSC Board	23 Aug-21 Sep 04	HRC
(second look YG 93 only)		
Infantry Conference	6-9 Sep 04 (tentative)	Ft. Benning, GA
Executive Council	27 Sept 04	Fort Leavenworth, KS
LVCTEPR	28-30 Sep 04	Fort Leavenworth, KS

Whats in the Next Issue of the Simulations Operations Quarterly

- Using Innovative Approaches with Constructive Simulations to Train for War — Preparing for Operation Iraqi Freedom
- Joint National Training Center Capability
- FA57 and their Role in the UA/UE
- An Approach to Training and Equipment Dependent Branch
- The Future of Simulation at the United States Military Academy

***Persons wishing to provide comments or submit articles for publication should contact
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Disclaimer: *The information in the newsletter represents the professional opinions of the authors and does not necessarily reflect the official Army position, nor does it change or supersede any information presented in other official Army publications. This newsletter will be published quarterly. It will be posted at www.fa-57.army.mil with back issues archived. Your comments, questions and input are invited. The purpose of this newsletter is to discuss M&S issues, exchange ideas and keep each other informed. Material may be reprinted, provided credit is given to the Simulation Operations Quarterly and to the author, except where copyright is included.*

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Calendar of Events 2004