MEDICAL COMMUNICATIONS FOR CASUALTY CARE (MC4)

The Hidden Benefits of Electronic Medical Records

Lt. Col. Edward T. Clayson, Ph.D.

The Department of Defense's transformation from capturing medical records on the battlefield using paper forms to ruggedized computers has garnered much attention over the past five years. By making this philosophical change, the DoD took a giant step forward in advancing the healthcare provided to each Service member in the combat zone. Specifically, the implementation of these tactical information systems—Medical Communications for Combat Casualty Care (MC4)—has changed the landscape in terms of how medical information is consumed, shared, and used to improve situations in the combat zone. Physically, the medical landscape has expanded, and so has the use of MC4 systems, aiding all level three facilities in Southwest Asia, more than 200 facilities across Iraq and Afghanistan, as well as contingency operations in Europe, Egypt, and South Korea. This expansion includes the full use of the system by Air Force and special forces units and spans six continents.

The use of MC4 systems during medical training exercises has proven essential to familiarizing deployable doctors and nurses with the system they use in theater.
MC4 Photo

Since 2003, as more deployed medical staff began to embrace the use of MC4, they also asked for additional functionality. At about the same time, MC4's reputation for being able to successfully implement, train, field, and support IT solutions on the battlefield became an opportunity for other DoD programs to pursue integration. Soon, new applications and system improvements would make their way onto the MC4 platform.

With the heightened prevalence of post-traumatic stress disorder in 2005, the Office of the Surgeon General tasked MC4 to add a digital form of its post deployment health assessment onto its handheld and laptops. The form requires deployed Service members to answer a series of questions before they return home. Previously, these assessments were completed using computer systems that had been fielded without a sustainment plan, leaving the former legacy system unsupported. Today, more health assessments are completed using MC4 systems than any other method. As a result of the data collected, hundreds of Service members are now under evaluation for symptoms of post-traumatic stress disorder that might have otherwise gone unnoticed.

In 2007, the addition of the Joint Theater Trauma Registry application to the MC4 system streamlined trauma data collected on the battlefield to researchers who use the information to implement solutions for the battlefield. Previously, it took months for data collected on paper forms to be studied. Now, the electronic collection of battlefield trauma will dramatically reduce the life cycle of when new products and procedures can be discovered to save more lives of frontline soldiers.

As medical teams and commanders took ownership of the system, software and hardware improvements were made to support their needs. As such, units requested the use of the improved system, and not just units preparing to deploy

to Southwest Asia. Units participating in training scenarios around the world have begun using MC4. Training events, such as Ardent Sentry in the United States and Operation Bayonet Strike in Europe, brought new users in contact with MC4 systems. Using the medical recording systems during non-threatening situations has allowed medical personnel to become familiar with the system before reaching the desert. This type of exposure has laid the foundation for a global classroom.

The military looks to get medical forces units trained quicker and more efficiently. With MC4 being used during training exercises, and indoctrinated in medical classrooms at home and abroad, users face a more level learning slope on how to use the system to gain an advantage in the field. The increase in experienced users has already equated to system improvements through the funneling of user feedback in the field to system integrators in the States. The expanding classroom will also have a profound effect on future capabilities, as the DoD and the Veterans Administration continue to strive toward one IT solution for its medical data repository. MC4's vast use on the battlefield will continue to provide a working case study for their success.

While obvious electronic medial record efforts remain on the forefront, 32,000 users can see the tangible expansion of MC4—28,000 systems fielded, 250 units trained, 8 million medical records captured—the true rewards often go unnoticed. The use of MC4 has directly led to improved and timely care administered to Service members on the battlefield, reduced the amount of paperwork created, time saved creating reports and finding new methods to saving Soldiers lives, and reduced costs. Being a conduit for Service members having a lifelong record of healthcare is more than about computers and software. It's about training and supporting the use of technology with open ears, and expanding the playing field with a vision in mind that what is done today will have a ripple effect on healthcare on the battlefield.

Clayson was the MC4 commander from 2005 to 2008.

DEFENSE SUPPLY CENTER RICHMOND
(SEPT. 4, 2008)

DLA Cherry Point Activates

Debra Bingham

CHERRY POINT, N.C.—An activation ceremony took place Sept. 4 at Cherry Point, N.C., marking the transfer of approximately 150 employees from the Fleet and Industrial Supply Center Jacksonville detachment to Defense Logistics Agency.

Air Force Brig. Gen. Andrew Busch, commander of Defense Supply Center Richmond, presided at the ceremony in the Marine Corps Air Station training building. DSCR is Defense Logistics Agency's aviation supply and demand chain manager and will manage DLA Cherry Point activities.

During the ceremony, Busch passed the DLA flag to Navy Cmdr. Eric Schoch, who is the officer in charge of DLA services at Cherry Point. Schoch previously served as site director at the FISCJ detachment at Cherry Point.

A 2005 Base Realignment and Closure mandate directed Service-run maintenance depots, industrial sites, and shipyards to transfer supply, storage, and distribution functions to DLA to optimize military readiness.

"Public law is why I'm here today," Busch said. "It's not about doing DLA takeovers, but to form partnerships—to work together with retail supply professionals and find inventory efficiencies that will support Col. Smith [*commanding officer of Fleet Readiness Center East*]. We want to build on a sense of trust for DLA and leadership."

Schoch congratulated the new DLA employees on their outstanding performance during the last four years and encouraged them to continue their legacy of service.

"We can not and will not rest on our laurels," Schoch said. "With the aging of the aircraft population, support of out-of-production aircraft, requirements for reduced turnaround time for repair, global competition for material, and a reduced manufacturing base—to name a few hurdles—your job is getting harder. But, there is no other workforce that I would rather be meeting those challenges with than you."

The Navy employees transferred in place to Defense Logistics Agency and will continue to provide supply, storage, and distribution support to maintenance activities at Navy Fleet Readiness Center East. FRC East is one of six fleet readiness centers operated by the Navy and provides maintenance, engineering, and logistics support on a variety of aircraft, engines, and components for all military services.

DLA, Commander Fleet Industrial Supply Centers, and the Navy Fleet Readiness Center worked together to smooth the transition for realigned employees, while ensuring continuity of service to warfighters. Similar transfers have already taken place at Air Force air logistics centers at Robins Air Force Base, Ga., and at Tinker Air Force Base, Okla. DLA Cherry Point is the first Navy site to activate under the BRAC mandate.

"Becoming part of the DLA family today has also opened up many new doors and opportunities," Schoch said. "We strive for continuous improvement and the realm of the possible has grown. Look for efficiencies, look for improved processes, look for enhanced integration of activity among all levels of supply and maintenance, and let your ideas be known."

Bingham writes for Defense Supply Center Richmond Public Affairs.

U.S. TRANSPORTATION COMMAND NEWS SERVICE (SEPT. 3, 2008)

USTRANSCOM Deploys Container Security System to Better Protect U.S. Military Supply Chain

SCOTT AIR FORCE BASE, Ill.—The United States Transportation Command recently deployed a container security system that detects tampering and helps protect military container shipments moving from Afghanistan to Pakistan.

USTRANSCOM introduced the CommerceGuard container security system, provided by GE Security, Inc., a business of GE Enterprise Solutions, to better protect its container shipments.

Based at Scott Air Force Base, Ill., USTRANSCOM directs and supervises execution of the military supply chain for the Department of Defense. The command required quick action to add high-technology intrusion detection and tracking to containers being transported to the port of Karachi in Pakistan. GE Security responded immediately to USTRANSCOM's request for a reliable container security solution.

"We're pleased that CommerceGuard is proving effective for USTRANSCOM. Within three weeks of receiving their call, we were able to get reliable container intrusion detection deployed in the Afghanistan-Pakistan trade lane," said Randy Koch, president and CEO of CommerceGuard.

The system provides shipment security throughout the supply chain.

USTRANSCOM contractors use CommerceGuard handheld readers at specific checkpoints in the supply chain to read container security devices on the command's containers. The devices report the security status of each container, alerting USTRANSCOM if doors have been opened without authorization. Logistics managers can use the data to determine when and where containers were opened.

U.S. military personnel mount the container security devices inside the container doors when the containers are filled with supplies, then use a handheld reader to arm the devices for shipment.

"In addition to heightening our security measures with intrusion alerts, the data made available through the CommerceGuard global information network adds efficiency to our processes by confirming that our containers are secure throughout this vital supply chain. This allows our supported commanders to focus their attention on operations," said Navy Vice Adm. Ann Rondeau, USTRANSCOM acting commander. "We have been pleased with the quick deployment, ease of use, and effectiveness of this system."

DEPARTMENT OF DEFENSE NEWS RELEASE (SEPT. 10, 2008)

DoD Announces Termination of KC-X Tanker Solicitation

The Department of Defense on Sept. 10 notified the Congress and the two competing contractors, Boeing and Northrop Grumman, that it is terminating the current competition for a U.S. Air Force airborne tanker replacement.

Secretary of Defense Robert Gates, in consultation with senior defense and Air Force officials, has determined that the solicitation and award cannot be accomplished by January 2009. Rather than hand the next administration an incomplete and possibly contested process, Gates decided that the best course of action is to provide the next administration with full flexibility regarding the requirements, evaluation criteria, and the appropriate allocation of defense budget to this mission.

Gates stated, "Over the past seven years, the process has become enormously complex and emotional—in no small part because of mistakes and missteps along the way by the Department of Defense. It is my judgment that in the time remaining to us, we can no longer complete a competition that would be viewed as fair and objective in this highly charged environment. The resulting 'cooling off' period will allow the next administration to review objectively the military requirements and craft a new acquisition strategy for the KC-X."

In making this decision, it was concluded that the current KC-135 fleet can be adequately maintained to satisfy Air Force missions for the near future. Sufficient funds will be recommended in FY09 and follow-on budgets to maintain the KC-135 at high mission-capable rates. In addition, the department will recommend to the Congress the disposition of the pending FY09 funding for the tanker program and

plans to continue funding the KC-X program in the FY10 to FY15 budget presently under review.

ARMY NEWS SERVICE (SEPT. 11, 2008)

Picatinny's GPS-Guided Excalibur Artillery Round Deemed 'Amazingly Accurate' by Troops

Audra Calloway

From taking out top al-Qaeda operatives to safely firing within 50 meters of dismounted infantrymen, the Picatinny Excalibur projectile is already paying dividends a year after its initial fielding to soldiers.

When Excalibur first debuted in Iraq in May 2007, it became the Army's first all-weather, precision-guided artillery round. While the Excalibur Program Office at Picatinny estimates approximately 70 of the groundbreaking Excalibur rounds have been fired in Iraq, Capt. Victor Scharstein of Alpha Battery, 2nd Battalion, 82nd Field Artillery, 3rd Brigade Combat Team, commanded one of the original units to field the round.

Scharstein used Excalibur multiple times in the Diyala province of Iraq. Operation Arrowhead Ripper, the deliberate clearance of Baquba, was one mission he recalls using the precision round.

"It was an urban setting, it was extremely bad weather, and there were no aircraft able to fly that day," he said.

Because of Excalibur, his unit was able to fire an artillery round at a target within 50 meters of infantrymen on the ground who were clearing the area.

"Had we not had Excalibur, we wouldn't have been able to do that," he said. "We wouldn't have been able to engage that target."

While the unit could have engaged the target with conventional artillery, that would have risked significant collateral damage and put civilians and U.S. soldiers at risk, Scharstein said.

Overall, Scharstein said the round was "amazingly accurate" with his fires producing a 92 percent success rate, meaning that the fired round hit or had an effect on the intended target 92 percent of the time.

The rest of the Army also began seeing the powerful effects of Excalibur almost immediately after its debut.

In July 2007, it was used to take down a top target for al-Qaeda south of Baghdad, Iraq, according to a July 16, 2007, news release by Multi-National Division–Central Public Affairs.

This al-Qaeda in Iraq cell leader was responsible for improvised explosive devices, vehicle-borne IEDs, and indirect fire attacks on coalition forces in Arab Jabour.

Pvt. Corey Rodriguez pulls the lanyard on the M-777A2 during the first firing of the Army's new GPS-guided Excalibur Round Feb. 25 at Camp Blessing, Afghanistan.
Photo by Army Sgt. Henry Selzer

The operative was in a meeting house when the 1st Battalion, 9th Field Artillery Regiment fired two Excalibur rounds and destroyed the house, the release said.

Such precision can be attributed to Excalibur's global positioning system technology.

When the projectile leaves the gun, it does a self-test, acquires its signal, and uses the signal to find its target, Scharstein said.

This precision accuracy has "brought artillery back into the close urban fight," Scharstein said. "Excalibur gives you the confidence that you can support soldiers in the close fight.

"With conventional rounds, the first few rounds may not be on target so there has to be some adjusting," he added. "With Excalibur, as long as I have an accurate target location, I know I'm going to get an accurate hit every time."

"The accuracy of the system is unbelievable," he said. "It's incredibly accurate."

Excalibur Range

Another positive of Excalibur is its consistent ability to engage targets at a variety of ranges, Scharstein said. Generally, the farther away from a target you are, the less accurate the fires become, Scharstein said. However, with Excalibur, "you can shoot it at its minimum or maximum range and you'll get that same level of accuracy."

Excalibur, which debuted in Afghanistan in February 2008, currently has an accuracy of less than 10 meters at ranges out to 14 miles, said Lt. Col. Joseph Minus, Excalibur program manager at Picatinny Arsenal. However, the next phase of Excalibur, called Ib, will have an accuracy requirement of less than 10 meters out to 24 miles, he said.

Firing Excalibur

Excalibur can be fired from M109A6 Paladins and M777A2 Howitzers. The Excalibur program is also a cooperative program with the Kingdom of Sweden, which is developing the Archer Cannon System that will also be capable of providing precision fires with Excalibur, according to Minus.

Scharstein fired his Excalibur rounds from a Paladin and said firing Excalibur was similar if not easier than firing conventional artillery. Because Excalibur is accurate, he said, operators do not need to frequently adjust fire to hit a target.

"It's very upfront .... I didn't find it very difficult and I never heard any complaints from my soldiers .... They loved the round and they loved firing it," Scharstein said.

Calloway writes for Picatinny Public Affairs.

The Joint Strike Fighter was designated the F-35 Lightning II in July 2006. U.S. Air Force photo

AIR FORCE PRINT NEWS (SEPT. 30, 2008)

Air Force, Navy Officials Agree Upon F-35 Depot Workload

WASHINGTON—Air Force and Navy officials signed a memo Sept. 16 identifying a new process for allocating F-35 Lightning II depot repair workloads.

The new process takes into account Service competency and experience in determining workload allocation.

"This was truly a joint effort on the part of the Air Force and the Navy to agree on the majority of the depot workload, ensuring we will have depot repair capability up and running when we need it," said Debra Walker, the deputy assistant secretary for logistics. The F-35, also known as the Joint Strike Fighter, is the largest joint program in the history of the Department of Defense.

For 80 percent of the major system categories on the Joint Strike Fighter, the Services were able to reach early agreement on workload allocation. This agreement was formalized in an Air Force/Navy jointly signed letter to the Joint Program Office for final approval. For the remaining 20 percent, which includes software and some avionics systems, a source selection team will be formed, comprised of representatives from all the Services and the Joint Program Office.

Some of the systems the Air Force and Navy officers were able to agree on up front include airframe and engines. The Joint Strike Fighter airframe maintenance, which will be up and running in 2012, will be located at the Fleet Readiness Center East at Marine Corps Air Station Cherry Point, N.C., and the Ogden Air Logistics Center at Hill Air Force Base, Utah. This includes associated doors, panels, covers, and control surfaces.

Engine maintenance, which will also stand up in 2012, will be at the Oklahoma City Air Logistics Center at Tinker AFB, Okla. A follow-on engine standup in 2014 will be at the Fleet Readiness Center Southeast at Naval Air Station Jacksonville, Fla.

The engine lift system, which will be used in the Marine Corps variant aircraft, will be maintained beginning in 2014 at the Fleet Readiness Center East-MCAS Cherry Point.

AIR FORCE NEWS SERVICE (OCT. 1, 2008)

Officials Enter Agreement to Create Aerospace Complex

TINKER AIR FORCE BASE, Okla.—Air Force officials announced Sept. 25 that the Service has signed a long-term lease agreement with Oklahoma County that will enable the Oklahoma City Air Logistics Center to establish the Tinker Aerospace Complex.

The lease, which was signed Sept. 24, covers approximately 407 acres of land formerly occupied by the General Motors Plant, including 3.8 million gross square feet of real property, of which 3.5 million square feet is industrial and administrative space and is expected to improve the efficiency of current OC-ALC operations.

Acting Secretary of the Air Force Michael B. Donley praised the effort as another example of how the state of Oklahoma and Tinker AFB's surrounding communities work together in an unprecedented partnership to preserve and enhance national security.

"The Air Force is very pleased to enter into a low-cost, long-term lease agreement with Oklahoma for the prior GM facility south of Tinker AFB," Donley said. "This facility will enhance operations at Tinker AFB and provide long-term benefits to the Air Force."

"This lease agreement will reduce the scope of projected military construction projects needed to replace substandard facilities, improve base energy usage, and provide flexibility for mission needs," said Maj. Gen. Loren Reno, OC-ALC commander. "It presents a tremendous opportunity for the air logistics center to improve the overall working environment for Team Tinker, and support our ability to secure the right workload for the ALC and help us better support the warfighter."

The property was purchased from General Motors by the State of Oklahoma and Oklahoma County through a bond election in May with the intent of making the property available to Tinker AFB through a low-cost, long-term lease.

The Tinker Aerospace Complex will host current 76th Maintenance Wing operations, as well as other Department of Defense missions.

Base officials noted that in addition to improving aircraft sustainment, the complex will reduce taxpayer costs for facilities maintenance by allowing the base to mothball and eventually demolish 21 substandard facilities directly related to the Tinker Aerospace Complex. It will also improve airfield

An airman from the Memphis Air National Guard guides an Army high-mobility engineer excavator into the back of a C-5 Galaxy transport at Charleston Air Force Base, S.C., Sept. 29, 2008. U.S. Air Force photo by Airman 1st Class Timothy Taylor

safety since many of these facilities are in the runway clear zones.

"We will begin moving maintenance operations into the Tinker Aerospace Complex very quickly and anticipate having some of the processes running by summer 2009," said Jeff Catron, Tinker Aerospace Complex program manager.

SPECIAL TO AMERICAN FORCES PRESS SERVICE (OCT. 2, 2008)

Air Force Starts Transporting New Army Vehicles

Air Force Staff Sgt. Robert Sizelove

CHARLESTON AIR FORCE BASE, S.C.—Airmen at Charleston AFB began shipping six new Army high-mobility engineer excavator vehicles Sept. 29 to warfighters in Southwest Asia.

Charleston is the first Air Force base to receive and ship the HMEE, a newly developed construction vehicle that provides a wide range of mobility while affording more protection for the operator than standard road repair and construction equipment, officials said.

"The purpose of the high-mobility engineering excavator is exactly that—mobility," said Chris Saucedo, the general manager of the company awarded the contract to build the HMEE. "The machine drives at 60 mph both on and off road."

The concept has been proven with less mobile equipment in terms of rapid road repair, Saucedo said. "Now, you have a machine that can actually integrate into patrols [and] maintain convoy speeds, and it doesn't require additional lift assets," he added.

Because it can open up roads, the HMEE lets commanders bring logistics capabilities into their tactical patrols, dramatically increasing mobility, Saucedo said. It also can create obstacles for the enemy, and it contributes to survivability

with the ability to provide water and supplies, build berms, and lay electrical lines, he added.

"I want every troop in harm's way to know that there is a highly dedicated team behind the HMEE, and we're very optimistic and very fortunate to be supporting the troops," Saucedo said. "It's been a long road, but we're all behind you and pulling for you 100 percent."

Air Force Staff Sgt. Heather Kern, assigned to the 437th Aerial Port Squadron, said the vehicles will give deployed engineers a greater measure of protection. "What's great about these machines is that they are mine-resistant, and they give our guys over there who are driving them a precious few seconds to get out of harm's way if they do get hit by a mine or improvised explosive device," she said.

Charleston was selected to process the HMEEs for shipment because it's the closest base to the production site in Savannah, Ga.

"It's hard work as far as the loading of the aircraft [*is concerned*]," Kern said. "It's very physical, but it's worth every minute of it. It's very important to make sure the guys on the ground in Iraq and Afghanistan have the equipment they need."

In 2007, the contractor received a $230 million procurement contract from the Army to produce 800 HMEEs, all of which will be built at the Savannah facility. The vehicle is the result of a four-year program of design, development, and testing between the manufacturers and the Army. Charleston airmen will continue to ship the vehicles as they become available.

Sizelove writes for the 437th Airlift Wing Public Affairs Office.

DEFENSE TECHNICAL INFORMATION CENTER NEWS RELEASE (OCT. 6, 2008)

DoDTechipedia Launched

FORT BELVOIR, Va.—The Defense Technical Information Center and the director, Defense Research and Engineering announce the launch of *DoDTechipedia*, a Department of Defense science and technology wiki. At the direction of Under Secretary of Defense for Acquisition, Technology and Logistics John J. Young Jr., DDR&E tasked DTIC® to spearhead the development of this DoD online collaborative encyclopedia.

DoDTechipedia ensures greater transparency and communication among DoD scientists, engineers, program managers, and warfighters. This tool enhances the DoD's ability to collaborate across the enterprise, identify solutions for technology challenges, and ensure taxpayer dollars are spent in an efficient manner.

DTIC Administrator R. Paul Ryan said, "DoDTechipedia is an opportunity for the Department of Defense to take advantage of wiki technology to share science and technology knowledge more efficiently."

A live forum, DoDTechipedia allows users to see and discuss innovative technologies throughout DoD and emerging technologies from the academic and private sectors. Its features include a quick registration process using a Common Access Card; a "Sandbox" for users to practice posting and editing content; acronyms/definitions; technology areas where discussions about S&T investment areas or enabling technology take place; interest area pages for DoD personnel and DoD contractors to work together on challenges and solutions; blog capabilities; hyperlinking of terms; and the ability to upload attachments. Collaboration on DoDTechipedia today, will ensure the most advanced technologies get to the warfighter tomorrow.

To access the DoDTechipedia Web site (logon required), servicemembers, DoD employees, and DoD contractors can visit <https://www.dodtechipedia.mil>.

Media contact: Sandy Schwalb, 703-767-9205, e-mail pao@dtic.mil.

ARMY NEWS SERVICE (OCT. 8, 2008)

Maverick Missile System Work Increasing

Anthony Ricchiazzi

Technicians will see their mission to overhaul, repair, and test Maverick missile guidance and control systems (GCS) grow from about 300 to more than 700 per year.

The Air Force, Navy, and Marine Corps use the missile, which is also sold to foreign nations.

The AGM-65 Maverick is a tactical, air-to-surface guided missile designed for close air support with fire and forget capabilities. It is used against a wide range of tactical targets, including armored vehicles, ships, transportation equipment, and stationary targets such as buildings and bridges.

"There are three versions of the AGM-65 Maverick Missile, and the differences are all related to the guidance and control system," said Steve Janiga, chief of the Maverick Missile Branch.

"There is the first generation electro-optical/television version, the imaging-infrared (IIR) version, and the laser. All versions can track a moving target, but the laser has become the weapon of choice for all of the Services when pinpoint accuracy is needed."

The branch is part of the command, control, and computers/avionics directorate's tactical missile division. The television version uses a camera to track targets. "It will be replaced by a CCD [*charged-coupled device*] imager, which uses an integrated circuit like the one in a camcorder," Janiga said. The CCD upgrade will provide greater reliability.

The imaging infrared version can track a target by locking onto the target's heat source to overcome darkness and inclement weather.

The laser version uses ground or airborne laser designators to track a target and has pinpoint accuracy, Janiga said.

The Air Force manages the program, but all the Services send work to Tobyhanna.

The Navy is sending imaging infrared GCSs to the depot for the first time, contributing to the rise in workload. Janiga said the branch's highest production rate was 100 GCSs per month. "We could do that again, if necessary," he noted.

Imaging infrared GCSs account for 80 percent of the workload, television 15 percent, and laser 5 percent. Technicians repair the circuit cards for all three GCS versions to the component level and replace cryo engines, image detectors, and torquer motors.

Once repairs are made, the GCSs are tested using a variety of methods to make sure the missile seeker tracks targets accurately, correcting for pitch, yaw, and roll.

The longest test is for the television version, in which hundreds of tests are conducted. The IIR and laser GCSs are tested using automated test systems.

"Every GCS gets a custom alignment," Janiga noted. "If a circuit card is repaired or replaced, the rest of the components are realigned so they function seamlessly together."

Tobyhanna Army Depot is the largest full-service command, control, communications, computers, intelligence, surveillance, and reconnaissance maintenance and logistics support facility in the Department of Defense. Employees

Soldiers attach a testing unit to the guidance system on a Maverick missile. The testing unit verifies the Maverick can identify and steer to a target. U.S. Air Force photo by Master Sgt. Andrew Gates

Robert Stanaback, electronics technician, tests a gyro optics assembly of a Maverick missile infrared guidance and control system. Photo by Steve Grzezdzinski

repair, overhaul, and fabricate electronics systems and components, from tactical field radios to the ground terminals for the defense satellite communications network.

Tobyhanna's missions support all branches of the Armed Forces. The depot is the Army Center of Industrial and Technical Excellence for communications-electronics, avionics, and missile guidance and control systems; and the Air Force Technology Repair Center for ground communications and electronics. About 5,800 personnel are employed at Tobyhanna, which is located in the Pocono Mountains of northeastern Pennsylvania.

SPECIAL TO AMERICAN FORCES PRESS SERVICE (OCT. 10, 2008)

Cartwright Urges Improving Technological Advances

Air Force Master Sgt. Adam M. Stump

MARINE CORPS BASE QUANTICO, Va.—The U.S. military needs to continue working on technological advances to fight a pair of wars that are "winnable," the Vice Chairman of the Joint Chiefs of Staff said Oct. 9.

Marine Corps Gen. James E. Cartwright, speaking to a group of Marine Corps University students during the Erskine lecture series, said the U.S. military's priority is to win the current conflicts in Iraq and Afghanistan and be ready for future challenges and threats.

Addressing the current wars in Iraq and Afghanistan, Cartwright said, "This fight is winnable."

The Service chiefs are doing a great job preserving, training, and equipping the force, Cartwright said. The Army, in particular, has done an amazing transformation by turning from a garrison structure to a more expeditionary force, he said.

"We're taking an Army and completely transforming it," Cartwright said. The Army has switched from a division construct to a brigade construct, all while fighting two wars.

"Those are huge changes, larger than anything this Army has done since World War II," he said.

The reserve forces also have undergone a notable transformation, turning from a strategic mobilization force into an operational force, all while growing larger than the active duty side of the military.

All of this, the vice chairman said, has transformed the U.S. military into an experienced and more capable force. With the increased experience and capability, Cartwright said, the military will be more able to adapt to a future conflict.

"We might have to spend a couple of months to be ready to go to some different kind of conflict, but it's going to be a couple of months, not a couple of years," he said.

The vice chairman said another major advance during the past few years has been unmanned aerial vehicles. Cartwright said the United States has gone from a handful of UAVs at the start of the war in Iraq to currently hundreds. However, he said, UAVs need to develop a common ground station to communicate better.

In addition, the general said, UAVs need to be used more efficiently, and policies need to be examined so UAVs can use different tactics. The general added that the platform also needs to become an all-weather capability.

Another challenge the U.S. military is facing is cultural and language training. While the military has ramped up the training capability, Cartwright said, the United States still is behind allies because of a "speak my language or you're dumb" mentality.

A great model of success is the international package delivery company—UPS—which runs an aggressive cultural and language training program, the general said. UPS puts employees into the program before stationing them overseas, he said.

"We've got to get in the same boat," Cartwright said.

Stump serves in the Joint Chiefs of Staff Public Affairs Office.

ARMY NEWS SERVICE (OCT. 15, 2008)

FCS Gets Full Funding in Authorization Act

C. Todd Lopez

WASHINGTON—The testing of Future Combat Systems equipment and testimonials from soldiers using it may have helped the program receive full funding for the first time.

President Bush signed the National Defense Authorization Act for Fiscal Year 2009 Oct. 12. The new bill includes some $3.6 billion in funding for FCS, the full amount asked for by the Army. This is the first time Congress has fully funded the Army's FCS request.

"I think it's very notable we received full funding," said Lt. Gen. Stephen Speakes, deputy chief of staff for G-8, during a conference Oct. 8. "And we think it's a factor that we have capabilities in the hands of soldiers ... where our critics and supporters alike can talk to the soldier who is a combat-hardened veteran, [*and*] who does have a unique perspective

Army Pvt. Michael Hartz, a member of the 3rd U.S. Infantry at Fort Myer, Va., learns about the Micro Air Vehicle from Dan Fouts of Honeywell during the 2008 Association of the United States Army Annual Meeting and Exposition, Oct. 6-8 in Washington, D.C. The MAV is one of the "surrogate" technologies currently in Iraq. The MAV is strikingly similar in appearance to the Future Combat System's Class 1, Block 20 unmanned aerial vehicle. Though the MAV lacks some of the communications capability the FCS UAV will have, it was developed from FCS technology. Photo by C. Todd Lopez

about what their needs were that were unmet when they were last in combat."

Speakes said moving away from presentations and slide-shows and allowing both FCS supporters and detractors to see the "Spin Out 1" equipment in the hands of soldiers has allowed everybody to get a more realistic view of what FCS is about.

It "has had a powerful affirmative effect in instilling confidence that the Army has it right, with delivery capability on time and on target," Speakes said. "And this [is] absolutely essential to the needs of the Army today and tomorrow that we continue to support this program."

Though there is no FCS equipment currently in either Iraq or Afghanistan, there is "surrogate" equipment there—about 25 micro air vehicles in the hands of the 25th Infantry Division and also about 1,500 Pacbot robots.

The MAV is similar in appearance to the FCS's Class 1, Block 20 unmanned aerial vehicle. And though it lacks some of the communications capability the FCS UAV will have, it was developed from FCS technology, officials point out.

The Pacbot is similar to the FCS unmanned ground vehicle, though it is heavier and lacks the ability to communicate with the FCS network. It too was developed from FCS technology.

Actual FCS technology is now in the hands of soldiers at the Army Evaluation Task Force at Fort Bliss, Texas. Equipment there includes the actual Class 1, Block 0 UAV, the SUGV, the non-line-of-sight launch system, and kits to network Humvees to the FCS network.

While not part of FCS, but instead a complementary system, the ground soldier ensemble from PEO Soldier is also at the AETF. The ensemble will eventually hook soldiers into the FCS network—making soldiers themselves a future combat system.

Soldiers at the AETF have already conducted testing on FCS equipment while acting as a heavy brigade combat team. Now they are resetting to test as an infantry unit. That testing leads up to "limited user testing" in summer 2009. The LUT is the brigade-size test that will prove usability of the equipment and pave the way to the "milestone C" decision, which officials say will allow the program to move toward production of equipment for fielding in 2011 with infantry brigades.

"That will eventually lead to the production testing in 2011 that goes to the 1st Infantry Brigade Combat Team," said FCS Program Manager Maj. Gen. Charles Cartwright. "Once that IBCT is done, we will ramp up to about four IBCTs, both active and Guard, across the Army to finish out all the IBCTs."

Eventually, as many as 43 IBCTs across the Army and National Guard will be equipped with the FCS components included in Spin Out 1 of FCS—the equipment currently in testing at AETF.

By 2015, officials expect the first FCS Brigade Combat Team to be equipped with the full slate of FCS equipment, including its manned and unmanned vehicles, its UAVs, and its network. Until that time, additional components will be pushed out to the force, including such things as Multifunctional Utility/Logistics and Equipment, known as MULE, and the Class IV UAV.

DEPARTMENT OF DEFENSE NEWS RELEASE
(OCT. 16, 2008)

DoD Announces Non-Certification of Armed Reconnaissance Helicopter Program

The Department of Defense on Oct. 16 notified the Congress and the contractor, Bell Helicopter, that it will not certify the U.S. Army Armed Reconnaissance Helicopter (ARH) program for continuation.

Under Secretary of Defense for Acquisition, Technology and Logistics John Young, in consultation with senior defense and Army officials, has determined that the fundamental cost and schedule basis underlying award of the ARH contract is no longer valid.

The ARH contract was awarded for an expected development cost of $359 million and a procurement average unit cost of $8.56 million. Currently, DoD estimates that development will cost $942 million, and the procurement average unit cost will be $14.48 million. Delivery of ARH to the Army was originally scheduled to take place by 2009, but the current projection is for 2013.

"Rather than continue this program", Young said, "I have decided that the best course of action is to provide the Army with an opportunity to define a coherent, disciplined Kiowa Warrior helicopter replacement program, and to obtain more rigorous contract terms for its development."

Secretary of the Army Pete Geren stated, "The cost and schedule that were the focus of the decision to award the contract to Bell Helicopter are no longer valid. We have a duty to the Army and the taxpayer to move ahead with an alternative course of action to meet this critical capability for our soldiers at the best price and as soon as possible."

DEPARTMENT OF DEFENSE NEWS RELEASE
(OCT. 20, 2008)

United States, Italy Sign Procurement Accord

Secretary of Defense Robert M. Gates and Italian Minister of Defense Ignazio La Russa signed an updated Reciprocal Defense Procurement Memorandum of Understanding on Oct. 20, 2008, which allows effective defense cooperation by establishing principles and procedures recognized by both governments for the conduct of defense procurements. Under this agreement, each government provides access to its defense market to the industry of the other country.

The MOU allows each country specific benefits on a reciprocal basis, consistent with national laws and regulations. These include provisions for duty-free certificates and, in most cases, the evaluation of offers without applying price differentials under "buy national" laws.

The United States and Italy have established and maintained understandings relating to reciprocal defense procurement since 1978. The MOU was last extended in November 1990.

The MOU promotes rationalization, standardization, and interoperability of defense equipment with allies and other allied governments. It provides a framework for ongoing communication regarding market access and procurement matters affecting effective defense cooperation.

AIR FORCE NEWS SERVICE (OCT. 24, 2008)

Lasers May Aid Missile Defense, Engine CrackDetection

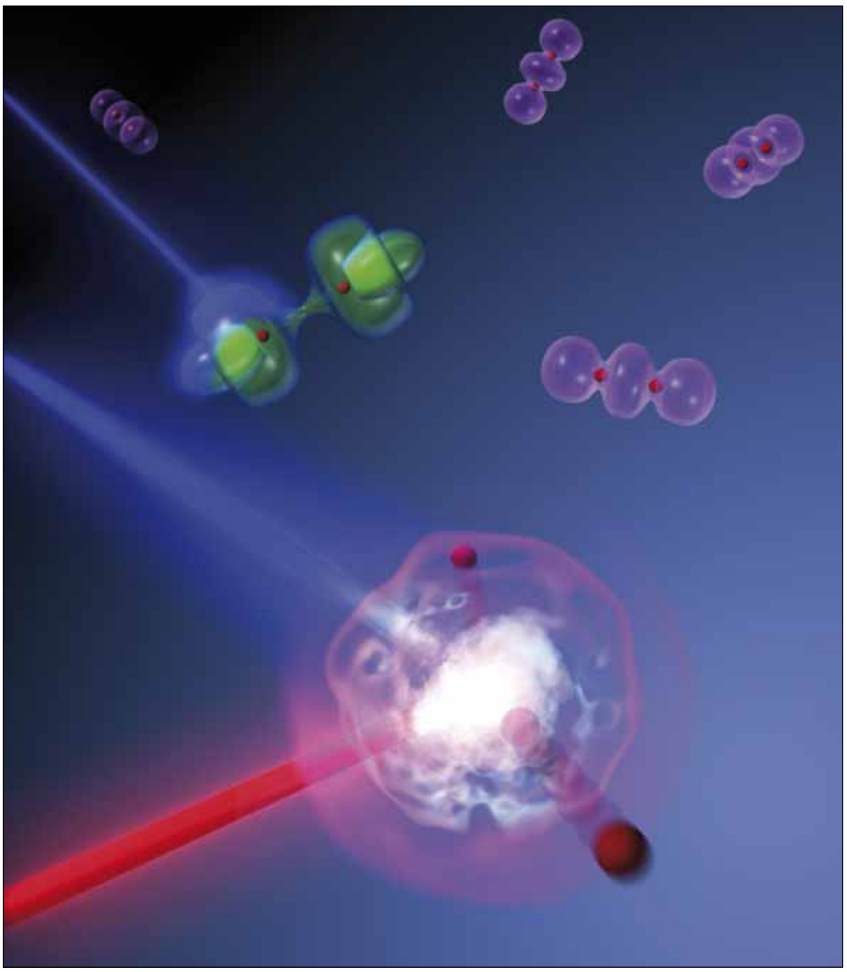
Maria Callier

ARLINGTON, Va.—Air Force Office of Scientific Research-funded work at the University of Colorado at Boulder could lead to possible future technologies that use the high energy densities of lasers.

Studies by university officials explore how atoms and molecules respond to light pulses, which could show cracks in high-performance engines.

The husband and wife research team of Dr. Henry Kapteyn and professor Margaret Murnane has developed new, practical, laser-like sources in the ultraviolet and soft X-ray regions based on the most extreme form of nonlinear optics.

In this work, an intense femtosecond laser is focused into a gas-filled hollow waveguide. The interaction between the laser field and the atoms in the gas is so strong that electrons are violently accelerated, and then liberate their energy as a coherent beam of X-rays.



Ultrafast flashes of X-rays can eject an electron from a molecule, leaving the molecule in a super excited state that eventually causes it to break apart. The interaction of atoms and molecules is both useful for making coherent X-rays, which in the future may show previously undetectable cracks in jet turbine blades.
Courtesy image

Ultrafast coherent beams of X-rays have a myriad of applications in technology and science—from next-generation microscopes that have the capability to image thick samples in 3-D, to understanding how heat flows in nanostructures or how electrons move at interfaces relevant to energy harvesting.

This research impacts the Air Force by making ultrafast lasers useful in remote sensing, missile defense, and adapted optics. The femtosecond lasers that the couple develops to power the X-ray source are also used in micro-machining and may be applied to aircraft aerodynamics and high-performance engines.

"Our research straddles the boundary between laser science and technology," Murnane said. "We take ideas all the way from conception to integration in systems that can then be used by other scientists. This takes a team of physicists, engineers, and chemists all working together. We discovered that the interaction of atoms and molecules is both useful for making coherent X-rays which, in the future, may image previously undetectable cracks in jet turbine blades."

A major future challenge is to find ways of generating coherent X-ray beams, which require the scientists to control quantum phenomena at very high laser intensities. The challenges have also yielded new demands on the technology the couple uses to meet their goals.

"After a number of years of exploiting the laser technology that we already developed, we are now planning a new push for high-power laser technologies," Murnane said.

Callier is with the Air Force Office of Scientific Research.