In the News

AERONAUTICAL SYSTEMS CENTER
PUBLIC AFFAIRS (AUG. 22, 2006)
SMALL-DIAMETER BOMB READY FOR
WAR ON TERROR
Capt. Bob Everdeen, USAF

RIGHT-PATTERSON AIR FORCE BASE, Ohio—
Four major acquisition programs—developed
in parallel—have come together to provide
Air Force F-15E Strike Eagle crews with a revolutionary
capability that combines accuracy and reduced collateral
damage.

Military and civilian employees in seven locations worked
together developing the four new capabilities—small-di-
ameter bomb, advanced display core processor, joint
mission planning system, and the operational flight pro-
gram software, better known as Suite 5. The final, com-
bined product, which includes four additional smart
weapons stations, was delivered to Air Force pilots at
Royal Air Force Lakenheath, United Kingdom, last month,
eight weeks ahead of schedule and $26.9 million under
budget.

“If you would have put all of us in a room last summer
and asked us how we were going to make (the deadline),
we probably would’ve said, ‘This is new territory for all
of us,’ ” said George Spencer, the 912th Aeronautical Sys-
tems Group director in charge of F-15 systems here. “Be-
cause of all the things going on, there were some signif-
icant hurdles we had to overcome, but we had a team of
seven organizations that were fully committed to mak-
ing this program succeed.”

The key capability delivered to warfighters is the GBU-
39 250-pound small-diameter bomb—a munition capa-
ble of raining pinpoint precision explosions on enemy
targets from 60 miles away while minimizing collateral
damage.
“Previously in urban warfare, forces surrounding a building with insurgents or terrorists inside had two choices: air strikes to destroy the building, which created significant damage to nearby structures; or sending in ground troops, putting their lives at risk,” said Col. Richard Justice, the 918th AESG commander and small-diameter bomb program manager at Eglin AFB, Fla. “U.S. military rules of engagement dictate that we avoid or minimize death or injury to innocent people ‘next door.’ F-15s equipped with these four new capabilities can send in a much smaller bomb, which can strike within six feet of the aim point.”

In July, the first F-15Es were fitted with a training version of small-diameter bomb racks with electronics that allow jets to drop simulated bombs. After one of the sorties, Lt. Col. Will Reese, the 494th Fighter Squadron commander at RAF Lakenheath said, “Our four-ship (of F-15s) hit 16 targets with 16 bombs in one pass. In Operation Desert Storm you could expect one plane loaded with six bombs to destroy one target. Now we can use one bomb per target, and each aircraft can carry up to 16 bombs.”

Getting to that milestone was not easy. One program had many technical and programmatic problems to be resolved; and simultaneous development of two major software packages and two complex hardware programs was challenging for all. Behind all of the troubles was an unrelenting reminder that if one of the four programs was not ready on time, the entire endeavor was at risk.

“It was a tremendous effort by the overall Air Force Materiel Command enterprise team that required a phenomenal amount of communication and coordination to bring all these interrelated capabilities together at the right time,” said Lt. Col. Ed Offutt, the 912th AESG Strike Eagle team leader. “If any team member made a change, it had to be communicated to everyone else because it could affect their progress as well.”

The allocation of requirements to the contractor team at Boeing and its major supplier, Honeywell, to develop the new capability was driven by a vision of weapon system capability for warfighters.

“Integrating a new, complex (operational flight program) with a new core processor and precision weapon was a great challenge,” said Nanette Soehngen, Boeing’s F-15 development programs manager. “Boeing and Honeywell are very proud to be part of the Air Force team that got it done.”

At the same time, the small-diameter bomb team was completing a development program of 42 launches with a 95-percent success rate, on cost and on schedule.

Everdeen is with Aeronautical Systems Center Public Affairs at Wright-Patterson Air Force Base, Ohio.

ARLINGTON—The Army moved closer to transforming itself into a more relevant, capable, and ready 21st-century force Aug. 11 when officials completed the In-Process Preliminary Design Review (IPDR) of its principal modernization effort, the Future Combat Systems program.

The IPDR is the latest in a series of program milestones that confirms FCS modernization meets the Army’s cost projections, time schedule, and performance expectations. With requirements and functionality for all 18 FCS systems defined, hardware and software can now be designed and tested.

“IPDR represents the transition from requirements to design, build, integrate, and test,” said Maj. Gen. Charles Cartwright, FCS program manager. “Within a year, FCS capabilities will begin to be integrated into the current force through our Evaluation Brigade Combat Team. The EBCT will provide a structure that will allow us to test, validate, and then deliver to our soldiers new capabilities that are specifically designed to address 21st century threats. Our Army and our troops require these new FCS capabilities sooner rather than later.”

FCS modernization will now focus on delivering Spin-Out 1 capabilities to the EBCT, which will be stood up early next year at Fort Bliss, Texas, to evaluate, test, and refine Intelligent Munitions Systems, Unattended Ground Sensors, the Non-Line of Sight Launch System, and an early version of the FCS Networked Battle Command.

Both the FCS spin-outs and the EBCT are part and parcel of a concerted Army effort to deliver crucial new capabilities to the current force as soon as possible. Spin-outs of FCS technologies to the EBCT will begin in 2008 and continue every two years thereafter.

FCS is a cornerstone of a more comprehensive Army modernization effort that also includes developing a more modular or versatile force, with greater joint and expeditionary capabilities. Toward that end, FCS includes a...
suite of 18 manned and unmanned systems, air and ground vehicles, all interconnected by a modern network to give soldiers unprecedented situational awareness and new capabilities to address 21st century threats. The 18 systems include Manned Ground Vehicles, Unmanned Aerial Vehicles, Unmanned Ground Vehicles, and such spin-out technologies as the Non-Line of Sight Launch System, Intelligent Munitions Systems, and Unattended Ground Sensors.

During the IPDR, each system team provided a detailed technical work plan for the next two years. The IPDR also included a review of all layers of the FCS Network, embedded training, modeling and simulation, logistics and supportability functions, and complementary programs.

The IPDR also demonstrated the maturity of the overall FCS baseline design concept. The review found that critical FCS technologies are maturing on schedule; program risks are well understood; and these risks are being actively—and successfully—managed.

FCS is the Army’s first modernization effort in almost four decades. Program costs have remained steady and constant: $120 billion (FY03 constant dollars) for Research, Development, Test and Evaluation (RDT&E) plus procurement in the next two decades.

FCS modernization costs increased in 2004 when the Army increased the program’s size and scope to speed the delivery of more modern capabilities to frontline troops.

The concurrent procurement of 18 systems in tandem has reduced system development and demonstration costs by an estimated $12 billion, while shrinking the development-to-field timeline by about 30 percent.

“The Army modernization is saving taxpayers time and money, while giving our soldiers lifesaving, state-of-the-art capabilities sooner rather than later. This makes FCS the Army’s most critical investment requirement,” said Cartwright.

The 2nd Battalion, 23rd Infantry, received its complement of MGS vehicles last month after more than a year of waiting. They are the first vehicles to be fielded in the Army.

“I think its going to give the infantry a whole new dimension of what they can do. Armor and infantry have kept each other at arm’s length for years and years,” said Sgt. 1st Class David Cooper, an MGS platoon sergeant with B Company, 2-23 Inf. “We’ve got some growing pains, but once we get out there and they see what we can do, we’re going to be everybody’s friend.”

Each infantry company is slated to receive three vehicles, though crews don’t expect to operate together except on rare occasions.

The vehicles carry crews of three, and are equipped with a 105 mm main gun and a state-of-the-art fire control system. The MGS also has an onboard coaxial machine gun that’s fire-controlled.

“You can literally shoot smiley faces with it at 900 meters,” said Cooper. “Even minus the big gun we can give the infantry a lot of support.”

The 105 mm is capable of firing four types of rounds: SABOT, a depleted-uranium armor-piercing round; HEAT, high-explosive anti-tank; HEP, high-explosive plastic; and a canister round. The rounds are loaded using a hydraulic auto-loader in the rear of the vehicle.

The HEP and canister rounds give Stryker units new capabilities, especially in urban areas. The HEP can blow holes in reinforced concrete walls, but unlike the rounds from an Abrams, won’t continue through the target and into surrounding buildings. The canister provides an effective anti-personnel capability.

“The vehicle’s basic role is to support the infantry. It’s not there to take on tanks or go toe-to-toe in the wide-open desert like we did with the Abrams,” said Sgt. 1st Class William Ozmet, an MGS instructor from Fort Knox, Ky. “Its primary function is blowing a hole in the wall or blowing up bunkers.”

Over the past year, the crews have been training with TOW-ITAS Humvees or other Stryker variants. Finally having the vehicles gives the crews a chance to delve into training.

**ARMY NEWS SERVICE (AUG. 29, 2006)**

**STRYKER TEAMS TRAIN WITH NEW VEHICLES**

*Jason Kaye*

**FORT LEWIS, Wash.**—A long wait is over for Stryker Mobile Gun System (MGS) crews of the 4th Brigade, 2nd Infantry Division.
“I can actually start focusing on our training, both on our mission tasks and working with the infantry,” said 1st Lt. Christopher Lilley, the MGS platoon leader in B Co.

The MGS also comes equipped with training software that allows soldiers to train on various engagements in their own vehicles, instead of going to a simulator somewhere else.

Once the 4th Bde. completes training, instructors from General Dynamics Land Systems will move on to equip and train soldiers in Hawaii and Pennsylvania. Training for those units may change according to lessons learned at Fort Lewis, but the vehicle itself is expected to remain mostly unchanged.

“I’m confident that this will turn out to be a successful piece of equipment for us, the infantry, and the Army,” said Lilley.

Kaye is on the staff of the Fort Lewis Northwest Guardian, the authorized newspaper for Fort Lewis, Wash.

U.S. ARMY SOLDIER SYSTEMS CENTER (SEPT. 7, 2006)
ARMY’S FUTURE FORCE WARRIOR PASSES MAJOR MILESTONE

NATICK, Mass.—The Army’s Future Force Warrior system is one step closer to being fielded as the Ground Soldier System following a successful demonstration in August of its electronic networking capability.

Developed and managed by the U.S. Army Natick Soldier Center with General Dynamics C4 Systems as the lead integrator, FFW is the Army’s flagship science and technology program, aimed at integrating “best in class” technologies from the Army’s Research, Development, and Engineering Command (RDECOM) enterprise, other government agencies, and industry to enhance the combat effectiveness of the soldier and small combat unit.

This marks a major milestone for the program, said Carol Fitzgerald, program manager for the FFW Advanced Technology Demonstration.
“This was the first of two incremental design phases. We have successfully demonstrated network interoperability of the soldier/small combat unit with the future force network,” she said. “This achievement satisfied the program’s top level goal for its first incremental design and was completed three months ahead of schedule.”

According to Fitzgerald, the FFW Technology Program Office delivered early prototypes of the “Increment 2” design, enabling risk reduction of the system that will continue to be enhanced throughout the remainder of the program, which is scheduled to conclude in late 2007.

To achieve this success, NSC has worked with a number of its sister centers, including the Communications and Electronics Research, Development and Engineering Center (CERDEC).

“Natick participated in CERDEC’s Command, Control, Communication, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) On-the-Move program,” said Fitzgerald. “This allowed us to leverage an important Army field experimentation venue to assess multiple developmental technologies addressing future force network integration, including FFW.”

As the lead organization for the FFW ATD, NSC is responsible for the successful integration of all FFW-related technologies developed by government and non-government partners and ensuring that the final product seamlessly incorporates state-of-the-art technologies into one soldier-friendly package.

“Through NSC’s participation in this experiment, the Army has gained valuable soldier feedback on network/communications capabilities as well as soldier acceptance feedback regarding the many aspects of the advanced FFW combat ensemble,” said Fitzgerald.

The FFW Increment 1 capabilities demonstrated at the OTM included: SCU integration into the future force network via the Soldier Radio Waveform; demonstration of the Soldier Protective Individual Equipment System, an advanced body armor and load carriage system; demonstration of cooperative engagement/networked fires using digital target handoff and Non Line of Sight fire; demonstration of headgear thermal and Image-Intensification sensor fusion; demonstration of system voice control; and simulation of physiological status monitoring.

In addition, the FFW early Increment 2 capabilities demonstrated at OTM included: demonstration of Leader
level Command and Control via FalconView (leveraged from the Air Force), system voice control, integrated Class I Unmanned Aerial Vehicle imagery, look-down display integrated into combat goggles, and advanced power management devices to extend mission duration; demonstration of Soldier-level Situational Awareness leveraged from CERDEC’s Command and Control Mobile Intelligent Net-Centric Computing System program; Warrior Physiological Status Monitoring; and deeper integration of electronics into the FFW combat ensemble.

Fitzgerald said that the FFW is spiraling mature components to enhance the Program Executive Office Soldier’s Land Warrior system, designed for Stryker and current force interoperability.

“FFW will transition to the PEO Soldier in fiscal year 2008 to support the Army Requirements Oversight Council-approved Ground Soldier System—the next version of Land Warrior, which supports Future Combat Systems and future force interoperability,” she said.

“FFW participation in this major Army experimentation venue helps the Future Combat Systems program address their risks of dismounted soldier integration into FCS,” said Fitzgerald. “The FFW ATD is scheduled to conclude at the end of 2007, with participation in C4ISR OTM 07 and Air Assault Expeditionary Force/Spiral D serving as the culminating events.”

First Lady Laura Bush welcomes USS Texas to the fleet

Mass Communication Specialist 1st Class Barrie Barber, USN

ALVESTON, Texas—First lady Laura Bush ordered the sailors of USS Texas (SSN 775) to bring the U.S. Navy’s newest nuclear-powered attack submarine to life in a Sept. 9 commissioning ceremony in the Lone Star State.

As the crew rushed aboard the submarine before 10,000 spectators at the Port of Galveston, two F/A-18 Hornets roared across the sky, followed by a formation of three World War II-era Navy warplanes.

The first lady, the boat’s sponsor and a native Texan, told the crew the country will depend on them to defend democracy and freedom in the era of the global war on terrorism.

“People of a great nation are trusting you to keep them safe,” she told the sailors, adding the people of a great state are trusting them to carry the state’s—and the submarine’s—motto to the far corners of the globe: “Don’t Mess With Texas.”

“Every time the Texas sails, you can be justifiably proud that she carries a piece of each of you with her,” said Adm. Michael Mullen, chief of Naval Operations, noting the state’s fighting tradition has led thousands of Texans today to serve in uniform worldwide.

The crew and submarine will build on the legacy of the two battleships and one cruiser that have borne the name Texas since the late 19th century, the first lady said. The second Texas (BB 35), for example, bombarded Iwo Jima and Okinawa during World War II.

“In the face of tremendous danger, they put aside their fears to take up the cause of freedom,” she said.

The Texas, she said, embodies the best ideals of its home state: endurance, courage, loyalty, and stealth.

U.S. Sen. Kay Bailey Hutchison, a Galveston native, said her hometown has had strong historical ties to the Navy. The city was the homeport to the Texas navy that fought for independence from Mexico, she said, and is home to USS Seawolf (SS 197), a decommissioned World War II submarine.

“We are a state that loves our heritage and we have a deep respect for our nation’s military,” she said.

Machinist’s Mate 3rd Class Benjamin A. McTee said Texas was his top choice of submarines he wanted to serve aboard because he’s a native Texan.

The crew, he said, is anxious to set out to sea.

“I’m ready to see it come to life,” he said. “It’s been a long road and (the sailors are) ready to get out of the shipyard.”

The sub arrives in the fleet as the second Virginia-class vessel, and it will be homeported at Submarine Base New London in Groton, Conn.

U.S. Sen. John Cornyn, the ceremony’s principal speaker, said the warship stands as a testament to the nation’s unwavering commitment to stand up to extremism in the aftermath of the Sept. 11, 2001, terrorist attacks.
“America has learned the hard way the best guarantor of peace is a strong military,” the Texas senator said. “Our nation builds weapons of war so we may live in peace.”

The high-tech attack boat, with a crew of 134, sails into history as the first post-Cold War class of submarine designed for battlespace dominance against 21st century adversaries lurking in deep waters, near shore environments, or on land. The 377-foot-long sub, with a weight of more than 7,800 tons submerged, has the capability to travel more than 25 knots and dive below 800 feet. It has the ability to carry torpedoes, mines, cruise missiles, and transport Naval Special Warfare SEALs (Sea, Air, Land) around the world.

Virginia-class submarines rank as the first to have an information systems technology department because of the heavy use of computers aboard the vessel. For example, photonic masts that don’t penetrate the surface have replaced the traditional periscope, and more than 60 computer and information screens fill the control
room. The sub’s Multi-Mission Module will allow crews to use the latest technological equipment.

The nuclear-powered sub’s reactor plant will not require refueling during the boat’s planned lifespan.

The Navy has a planned class size of 30 vessels. More than 4,000 suppliers in 47 states and the District of Columbia produce millions of parts for the submarines.

The Naval Air Station Fort Worth Joint Reserve-based Navy Reserve squadron, Strike Fighter Squadron (VFA) 201 Hunters flew over the ceremony in two F/A-18 Hornets, while an F4F Corsair, F-6F Wildcat, and SBD Dauntless soared overhead in 1940s warplanes from the Lone Star Flight Museum in Galveston.

Barber is with Submarine Force, U.S. Atlantic Fleet Public Affairs.

ELECTRONIC SYSTEMS CENTER PUBLIC AFFAIRS (SEPT. 22, 2006)
AF RADIO BUY SETS EVOLUTIONARY PATH
Chuck Paone

HANSCOM AFB, Mass.—The Air Force Joint Tactical Radio System Program Office, part of the Electronic Systems Center’s Airborne Network Management Division, recently awarded the first Department of Defense contract for a JTRS radio.

The $7.6 million JTRS Handheld radio contract awarded through competitive bid to Thales Communications Corp., is considered an “interim solution,” said Capt. Michael Broadaway, Air Force JTRS program manager. The future iteration of this radio will comply with the full JTRS Operational Requirements Document.

This award, however, is putting “the first iteration” of a JTRS radio in the hands of U.S. warfighters now and is meeting their near-term needs, he said.

“This purchase is the first JTRS radio buy within the Department of Defense,” said Col. Anita Latin, commander of the 653d Electronic Systems Group, which oversees the Airborne Network Management Division. “This is a historical moment for the Air Force, because it provides an immediate capability increase while moving us along an evolutionary path toward the ultimate JTRS solution.”

The JTRS radios envisioned by DoD, expected to begin coming on line in the 2011 or 2012 timeframe, are based on software development that enables one radio to handle various waveforms, said Charlie Dancy of the MITRE Corp., the team’s engineering lead. This will allow an unprecedented cross-flow of information with a lot less hardware.

For the soldier—or tactical air control party member—on the ground, as well as for platform managers dealing with space constraints, there are obvious benefits to no longer needing multiple radios. The greatest benefit, though, will be the increase in warfighting efficiency, where easier and better inter-Service communication can make all the difference.

Current radio systems lack interoperability across the spectrum and have insufficient bandwidth to meet all current and anticipated future communications needs.

KHARMA, Iraq—Marine Sgt. Brandon Shofne radios back to his headquarters descriptions of the ordnance found during a weapon cache sweep in Kharma, Iraq, last December. Sergeant Shofne, who is attached to the USMC’s 2nd Combat Engineers Battalion, is using a legacy radio. The JTRS radios recently purchased by the ESC team will provide upgraded capability.

DoD photograph by Lance Cpl. Matthew Hutchison, USMC
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This initial procurement provides immediate relief to the warfighters in Afghanistan and Iraq who are currently borrowing radios from the Army to communicate with U.S. soldiers.

The ultimate JTRS solution is a family of all-Service radios and a new wideband networked waveform that can provide mobile, networked connectivity.

Another key, according to Dancy, is that the new, ‘software-defined’ radios will be “backward-compatible”; that is, compatible with the current waveforms in use today.

“This award is just the tip of the iceberg of a $2.9 billion Air Force JTRS procurement effort,” Broadaway said.

The radios will be used by Air Force Special Operations Command operators, security forces and civil engineers. They will also be used within Air Operations Centers, Distributed Common Ground System facilities, and other command and control centers.

The ESC team worked with the Air Force Command, Control, Intelligence, Surveillance and Reconnaissance Center at Langley AFB, Va., as well as the major handheld radio users expected to benefit from this purchase, to coordinate and help establish the requirements, said Steve Briggs, a senior program support specialist for AF JTRS. The C2ISR Center is responsible for establishing Air Force command and control requirements, and by working jointly with that center, the ESC team was able to put together a Request for Proposals that clearly stated customer needs.

Due to multiple bidders and the competitive bidding process, the team was able to save an estimated $2.7 million versus original projections.

These savings allowed the team to call for bids to purchase an additional 400 radios. In all, the team will purchase 1,675 radios this year, and an additional 10,000 next year.

“This is a great step forward,” said Broadaway. “This streamlined, competitive procurement—wherein we awarded the contract within 30 days of receiving vendor quotes—puts capability in the users’ hands quickly and establishes a path for future JTRS radio purchases.”

Paone is with Electronic Systems Center Public Affairs, Hanscom AFB, Mass.

U.S. ARMY SPACE AND MISSILE DEFENSE COMMAND
FIBER OPTICS OFFERS NEW CAPABILITY AT REAGAN TEST SITE
Paula Y. Taylor

A new undersea fiber optic cable from Kwajalein to Guam and with a direct link to the United States will enable U.S. Army at Kwajalein Atoll, Reagan Test Site, or USAKA/RTS, to distribute mission operations and personnel positions back to Huntsville, Ala. This initiative is scheduled to be completed March 2008.

Located in the Republic of Marshall Islands, USAKA/RTSs principal mission areas are primarily ballistic missile defense testing and space surveillance operations. The U.S. Army Space and Missile Defense Command/ARSTRAT is the Army’s proponent for space and missile defense and is responsible for the operation of Reagan Test Site and other facilities located at Kwajalein Atoll.

Equipment installed at the test site includes various tracking radars, stationary and mobile telemetry, optical recording equipment, and a secure intra-atoll fiber optic data network via submarine fiber optic cables. The Reagan Test Site also serves as a space launch complex, as a tracking station for manned space flight and NASA research projects.

Optical fiber systems have many advantages over satellite-based communication systems, the most noteworthy of which is wide bandwidth and low data latency. The key advantages of long-haul undersea fiber over geosynchronous satellite are the significantly higher bandwidth (more data) and low data latency (shorter path/near instantaneous). More bandwidth will allow for massive amounts of mission data required for running missions in the new operations center in Huntsville. The low data latency advantage is due to the shorter terrestrial fiber path versus the long satellite path to a satellite 93,000 miles in space. Near instantaneous data are essential for command and control of flight test missions as well as control of remote range sensors and the space surveillance mission. In addition, fiber is not affected by atmospherics and is more secure. Emerging technologies promise even greater distances in the future.

The success of the relocation initiative to Huntsville involves using the concept of distributed operations, a remote capability that enables authorized, geographically dispersed users to gain secure access to a common set
of data files. USAKA/RTS is implementing distributed operations in three phases:

**Phase 1**

**Kwajalein Modernization and Remoting**

The goal of this successfully completed phase was to provide the enabling architecture via fiber for future distributing operations to the mainland. During this phase, a fiber-optic network was installed locally throughout the command’s key range operations, which included establishing remote operations capability from Roi-Namur to Kwajalein.

**Phase 2**

**Demonstrate Distributed Operations in Huntsville**

During this current phase the Army will attain fiber optic connectivity from Kwajalein and to the Continental United States. Additionally, the Kwajalein Space Operations Control Center was established at the U.S. Army Space and Missile Command/ARSTRAT in Huntsville. Initial Operation Capability is scheduled for 2007.

**Phase 3**

**Mission-Capable Distributed Operations—FY08 and Beyond**

The final phase is the realization of space and missile testing operations from the United States, where all the appropriate functional and technical staff will be relocated. Additional benefits for the customer will be the ability to access critical mission data from the continental United States and the reduction of customer travel costs to Kwajalein.

Total cost of this initiative is expected to be $55 million, with $6.3 million per year being allotted for lease of the required bandwidth annually for 15 years. USAKA/RTS is committed to moving the majority of the operational mission to Huntsville, where it will be a valued addition to the hub of the Space and Missile Defense Command System Integration, Test and Evaluation Directorate.

Taylor is a senior program analyst with the U.S. Army Space & Missile Defense Command/ARSTRAT, Redstone Arsenal, Huntsville, Al.

**U.S. TRANSPORTATION COMMAND NEWS SERVICE (OCT. 6, 2006)**

**TRANSCOM NAMED DOD’S LEAD PROponent FOR RFID AND RELATED AIT**

Maj. G. P. Mirabella, USAF

SCOTT AIR FORCE BASE, Ill.—In a Sept. 26, 2006, memorandum from the under secretary of defense for acquisition, technology and logistics, U.S. Transportation Command was designated as the lead functional proponent for Radio Frequency Identification (RFID) and related Automated Identification Technology (AIT) implementation for the Department of Defense supply chain.

As the DPO, USTRANSCOM is responsible for the overall effectiveness, efficiency, and alignment of DoD-wide distribution activities, including force projection, sustainment, and redeployment and retrograde operations.

AIT is a suite of technologies that enables capture of source data, thereby enhancing the ability to identify, track, document, and control material, maintenance processes, deploying and redeploying forces, equipment, personnel, and sustainment cargo. This suite includes Linear Bar Codes, 2-dimensional Symbols, Optical Memory Cards, Satellite-Tracking Systems, Contact Memory Buttons, and RFID tags.

RFID tags (or transponders), which have been around since the 1980s, are small devices that are affixed to objects such as cargo pallets, containers, or individual items and which store information. Readers (or interrogators), both stationary and hand-held, read and write information from and to an embedded chip in the tags. The tags are read remotely when they detect a radio frequency signal from a reader. These readers then display tag information or send it over a network to back-end systems.

Active RFID tags, which contain an internal battery with up to eight years of life, can be read over long ranges (100 feet or more). Active RFID tags contain transportation information and support in-transit visibility.

Passive RFID tags consist of a computer chip attached to small antennae. They contain no battery; the tag “reflects” an ID number back to a reader. They have a shorter range of one to three feet and can be used to support business process enhancements, such as improved materiel receipt.

“We are implementing passive RFID at our aerial ports and are continuing to look at how passive RFID can benefit our business processes,” said Air Force Lt. Col. Amy Pappas, chief of the Initiatives Branch of USTRANSCOM’s Strategy, Plans, Policy, and Programs Directorate, the office that is the command’s lead element for AIT imple-
In the News

Private industry uses RFID tags—active and especially passive—as well as other AIT extensively to improve the asset visibility and in-transit visibility of their supply chains. Based on the success of these technologies in the commercial sector, the Defense Department, led by USTRANSCOM, has been implementing RFID and other AIT to improve the efficiency and effectiveness of its distribution system.

USTRANSCOM is using AIT to achieve better visibility of its shipments. Pappas explained that there is an extensive active RFID infrastructure in place at strategic ports worldwide. This allows USTRANSCOM to know when shipments arrive and depart these ports, and this information is fed to USTRANSCOM’s Global Transportation Network, an automated command and control information system that provides an integrated system of in-transit visibility information and command and control capabilities.

Mirabella is with U.S. Transportation Command Public Affairs at Scott AFB, Ill.

QUANTIFYING RISK ACROSS THE DEPARTMENT OF DEFENSE

Capt. Gregory Tyler, USAF • Barbra Masquelier

Every mission in the DoD involves some kind of risk—from developing aircraft maintenance schedules to managing research and development programs in the laboratory. In their efforts to execute sound risk management, Department of Defense workers frequently confront daunting amounts of data that contribute to a decision, but mean nothing individually. Many times these data represent inexplicit averages, approximations, and expert opinion. The challenge is fusing all this risk management information and displaying it for effective and efficient decision making.

The preemptive managing of these risks just became easier. Scientists and engineers at the Air Force Research Laboratory have developed RiskAoA, an Excel-based tool for the quantitative comparison/analysis of alternatives, which transforms daunting amounts of data into concise information. RiskAoA, which combines textual, quantitative, and qualitative inputs to generate an ordered comparison of the risks for any alternatives, is now available to provide decision quality information for anyone.

RiskAoA

Current risk tools fill an important gap in risk analysis; they display the risk of a program under current conditions. RiskAoA fulfills another niche—that of comparing and contrasting alternatives for planning and instant review. This is an immense aid to future planning and the comparison of a portfolio of current programs. Risk evaluations from current tools map directly into RiskAoA for other quantitative comparisons.

Not only is RiskAoA a program manager’s tool, it also is easily adapted to quantify any alternative, comparison, or set of choices. Any type of risk comparison—ranging from contract proposals to stock portfolios, or even different routes to work—can be processed by RiskAoA. Simply stated: it analyzes choices.

RiskAoA uses statistics to generate its outputs. Along with a quantitative comparison of the risks of alternatives, it also generates a forecast—an estimation of how accurate the evaluation will be. This is similar in concept to a weather forecast: given the last 100 days of 80 percent humidity and the sun shining, it has rained 40 percent of the time. The RiskAoA concept is more simple: the more numerous risk categories available, the more likely the result will be accurate. In other words, RiskAoA can be likened to a shotgun approach—the more shots fired, the more likely a hit will find its mark.

The “shotgun” approach is a risk mitigating step in itself. Just as an individual shotgun pellet is not important enough to disrupt a single shot, spot inaccuracies in a robust data set of partial information are not important enough to skew the resultant analysis of alternatives.

RiskAoA has four primary uses: 1) long-term project analysis (analysis of alternatives, risk assessment teams, etc.) or situations having/requiring many details, but large uncertainties; 2) demonstrating risk for the phases of a project (6.1, 6.2, 6.3); 3) to demonstrate a project’s risk progression (history); and 4) to contrast multiple programs’ risk and to compare components of a project’s risk (e.g., plane: avionics, weapons, engines, landing gear, etc.).

The tool is simple to use relying on only four key inputs from the user. As depicted in the following chart, the dependent risk column allows the user to parameterize parallel and series risks. For example, if 10 people need to receive a phone call in order for the mission to be successful, then enter the number 10 into this column. Alternatively, if of those 10 people only one needs to re-
ceive the call, the number is 1/10. This can reflect the number of systems impacted, changes on configuration control, or other “domino” effects. The cornerstone of the tool is the qualitative assessments of risk; High, Medium, Low, or Negligible inputs are entered into the Catastrophic, Critical, Moderate, and Negligible columns. Note that quantitative assessments can also be entered.

The final input—Universal Risk—is the ability of the risk to impact the entire program. Pieces of a program on a critical path are the best example of this phenomenon. Universal Risk is also a useful tool for comparison analysis. If a project’s funding risk changes, it can be compared and contrasted with other programs’ sensitivity to change. The fourth input is the number of distinct systems impacted by the analysis.

The results are generated and display in raw and normalized numbers. They have three easy-to-understand display types. They represent 1) raw or “floating” results, 2) results divided by the worst result so that the worst is displayed as 100 percent, and 3), an advanced display for instances where a known risk result—for example, a result from historical, parametric, or engineering data—can be compared to the generated display. If known risk data are available, what is generated and displayed represents real values of probability.

RiskAoA, known previously as RiskHammer, has been referenced by the Defense Technical Information Center (DTIC), ESC/AE (and MITRE-Risk Specialists), and by the AFRL Systems Engineering Initiative.

Tyler and Masquelier are with the Air Force Research Laboratory’s Plans and Programs office. For more information or questions about RiskAoA, contact AFRL/XPC at (937) 656-9048 or place a request at AFRL.XPC@WPAFB.AF.mil. Please include your contact information and a brief description of the program or application. The distribution of the technology is encouraged to all government employees; however, most analysis will be distribution-limited.