

USAF Materiel Command: Delivering War-Winning Capabilities on Time and on Cost

Gen. Gregory S. Martin, USAF

Commander, U.S. Air Force Materiel Command

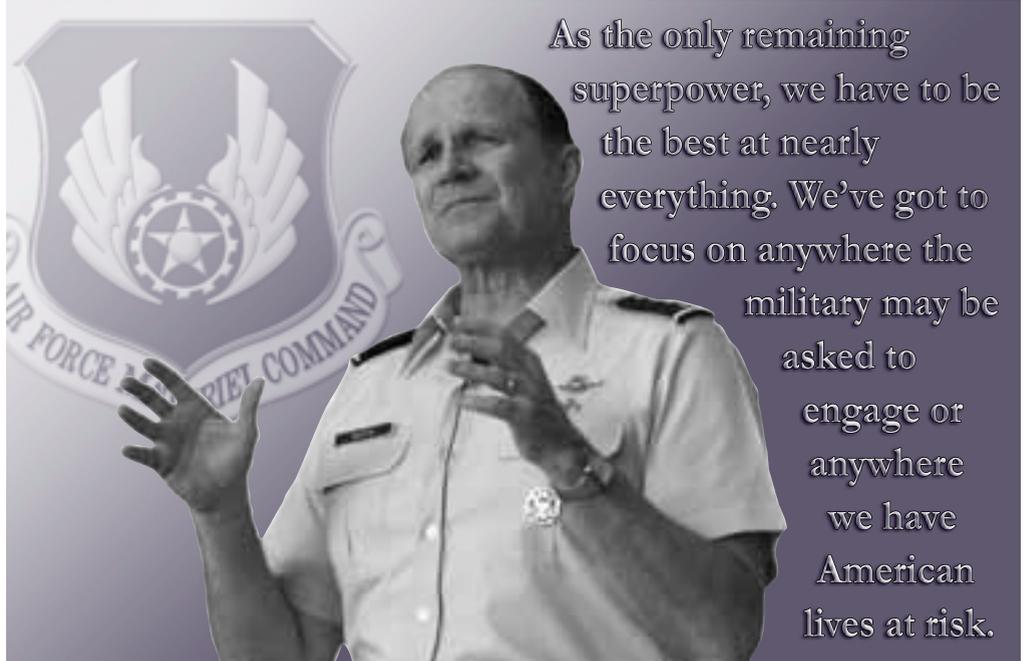
Since August 2003, Gen. Gregory S. Martin has served as commander of the Air Force Materiel Command at Wright-Patterson Air Force Base, Ohio. The AFMC conducts research, development, test, and evaluation, and provides acquisition management services and logistics support to keep Air Force weapon systems ready for war.

Defense AT&L talked to Gen. Martin in February, learning that AFMC is on the cutting edge of research, considering everything from the latest in robotics,

to the heat-sensor ability of a pit viper, to the self-healing capabilities of human cells, in its drive to deliver to the warfighter. Martin also spoke about structural changes to improve the AFMC organization and a focus on creating a “wingman” environment for the workforce.

Q *Air Force Chief of Staff Gen. John Jumper recently lauded your command for its 2004 accomplishments. What were those successes?*

A The people of AFMC rose to the challenge to provide America with war-winning capabilities on time and on cost. In 2004, we achieved our best-ever aircraft due date performance, returning over 92 percent depot aircraft on time or ahead of schedule. We beat the scheduled aircraft production target, delivering 653 aircraft when only 644 had been originally scheduled. We met our engine production goal: 406 required, and 406 delivered. We put more “iron” on the ramp as a result of fewer aircraft in



As the only remaining superpower, we have to be the best at nearly everything. We've got to focus on anywhere the military may be asked to engage or anywhere we have American lives at risk.

our depots, and our MICAP [*aircraft unavailable for lack of critical parts*] hours were reduced by 19 percent—an all-time low. Our customer wait time continues to drop: it was 10 percent better in 2004 than 2003. The command completed its depot and supply management processes \$500 million under its forecasted cost estimates; the savings helped fund some of the global war on terror requirements.

We have a team that is motivated and dedicated to supporting the United States and the global war on terror. I'm proud of AFMC's people and accomplishments, and I'm excited to see more progress in 2005.

Q *Can you explain your leadership philosophy, and how it's incorporated into your command?*

A The AFMC touches every other Service, every major U.S. Air Force command, and every person serving in our

armed forces. We provide cradle-to-grave support: from research and development of new technologies; to test and evaluation of weapon system performance; to providing professional acquisition support to the assistant secretary of the Air Force for acquisition, who is responsible for the acquisition of new weapon systems; to the day-to-day sustainment of every weapon system across our Air Force; to preserving our legacy aircraft for potential future use by the Air Force and our allies.

With such a large command and broad spectrum of responsibility, it's critical that we clearly articulate our priorities and focus. We do that through our strategic principle along with our vision. Together, they provide a solid foundation for our command.

AFMC operates under one vision: to be a valued team member of the world's most respected air and space force. In order to achieve that vision, we've got to deliver war-winning capabilities consistently on time, on cost. That's our strategic principle, our moniker, our rallying call. It's what we put on our stationery. It's what we want every member of AFMC to know, understand, and internalize.

Four years ago, our command provided only 64 percent of expected depot maintenance and spare engine work back to the customer on time. Today, over 92 percent of our products are returned to operators on the schedule we promised them. It's that kind of on-time, on-cost performance that earns us respect in the eyes of our customers.

Q *What significant opportunities do you see for AFMC while you're at the helm—or perhaps more appropriately, in the cockpit?*

A AFMC's capabilities are already in high demand, and we have great people with vision who see us doing even more. Our job is to help develop and field warfighting capabilities across the complete spectrum of conflict. As the only remaining superpower, the United States has to be the best at nearly everything. We've got to focus on anywhere the military may be asked to engage or anywhere we have American lives at risk. Whether it is by focusing developments in our laboratories or upgrading older weapon systems in our depots, AFMC people must be continually looking for opportunities to develop integrated capabilities that will be successful on any and every battlefield.

We have to look at where we stand now and determine where we want to be in the future. In order to succeed, we have to envision all the points along the way where potential opportunities may come up. For example, we're currently studying the initial Quadrennial Defense Re-

view framework and determining where our work fits—and what additional areas we'll need to focus on. Putting thought into these plans ahead of time will ensure that our nation's armed forces reach the ultimate goal: to win in everything we do. And we're doing that by focusing our organizational structure and our people on things that make a difference.

Q *In August of 2003, the secretary of the Air Force and chief of staff of the Air Force signed a memo, commonly called the "PEO Restructure," that reorganized the acquisition structure so both the management and execution of programs for major weapon systems reside with the commander of one of three AFMC product centers. Previously, program executive officers in charge of major systems had a very different sort of chain of command that didn't necessarily hold one commander responsible for the overall program. What are some of the major effects of this reorganization?*

A The PEO restructure has been one of my top priorities, and it's going very well. Let me explain what we did.

Our three product centers are the Aeronautical Systems Center here at Wright-Patterson Air Force Base, which is responsible for aircraft; the Electronic Systems Center at Hanscom Air Force Base, Mass., which is responsible for C4 [*command, control, communications, and computers*] and ISR [*intelligence, surveillance, and reconnaissance*] systems; and the Air Armament Center at Eglin Air Force Base, Fla., which is responsible for armaments and munitions [*see "A Profile of Excellence" on page 9*].

Under the PEO restructure, the commanders of these centers became dual-hatted as the center commander and PEO/Aircraft, PEO/C4ISR, and PEO/Armaments and Munitions, respectively. As PEOs, they work directly for the under secretary of the Air Force for acquisition who, by the way, has line responsibility and authority for the acquisition mission of our Air Force. As center commanders, they work for me, and it's my responsibility to ensure that we're trained, organized, and equipped to support the acquisition mission.

From my perspective, the PEO restructure has been successful. When I attend program management reviews with the under secretary of the Air Force for acquisition, there is now one responsible person who answers to the under secretary for acquisition-related issues and to me for train-organize-equip issues. There's no longer finger pointing between PEOs and center commanders because now they're one and the same. It makes for improved efficiency and accountability.

The primary responsibility of these dual-hatted commanders is to be a PEO. To help them handle these broad

Gen. Gregory S. Martin, USAF

Commander, U.S. Air Force Materiel Command

Gen. Gregory S. Martin earned a bachelor's degree from the U.S. Air Force Academy in 1970 and a master's degree in business management from Central Michigan University in 1977. He entered the Air Force in June 1970 with a commission from the U.S. Air Force Academy.



In addition to flying 161 combat missions in Southeast Asia, Martin commanded the 67th Tactical Fighter Squadron, the 479th Tactical Training Wing, and the 33rd and 1st fighter wings. He has logged more than 4,600 flying hours in various aircraft, including the F-4, F-15, C-20, and C-21.

Martin also served as vice director of the Joint Staff's Force Structure and Resources Directorate; director of operational requirements for the U.S. Air Force; and principal deputy to the assistant secretary of the Air Force for acquisition. Before assuming his current position, Martin served as the commander of U.S. Air Forces in Europe and Allied Air Forces Northern Europe.

responsibilities, we assigned each two deputies at the general officer/senior executive service level: a deputy for acquisition, who serves as a focal point for acquisition issues, and a deputy for support, who serves as a focal point for acquisition support issues.

We've now begun to implement the second phase of the PEO restructure, which will transfer PEO/program management responsibilities for weapon systems in their sustainment phase to our Air Logistics Center commanders.

Q *AFMC has developed many capabilities to keep deployed troops safer. Can you comment on the success of some of these programs? Which have proved particularly effective and/or popular among the troops?*

A One example: In response to an urgent need by Central Command Air Forces, our folks at Electronic Systems Center quickly developed a force protection airborne security system known as Desert Hawk. It's a small, remotely piloted aircraft, weighing about 7 pounds, that patrols the perimeter of U.S. installations at forward-deployed locations. With its built-in video camera, Desert Hawk trans-

mits images back to the ground control station, providing real-time footage of the base perimeter, day or night. The Desert Hawk is an eye-in-the-sky for our deployed troops and saves lives by adding another layer of defense that provides early warning and detection.

Another example is a small robot called ARTS, or All Purpose Remote Transport System. It's a bobcat-sized tractor, complete with a robotic computer system with custom attachments, that can remotely explode submunitions and other devices. It's only one of several small robotic systems developed by AFMC's Air Force Research Laboratory to counter threats from terrorist bombs and improvised explosive devices. In the past, explosive ordnance teams didn't have equipment that gave them a standoff capability to defuse terrorist devices or remove unidentified objects from roads, base perimeters, or airfields. AFMC, in cooperation with Air Combat Command and the 99th Civilian Engineer Squadron at the Nevada Test Ranges, quickly developed ARTS after an American was injured by an explosive device while clearing an area in Iraq. Today there are 60 ARTS fielded in Iraq and other locations in the world to protect explosive ordnance disposal and combat engineer troops. Plans are to produce up to 71 to be placed throughout the Air Force as needed.

We have other new life-saving technologies in the works using miniaturized components and new and developing technologies.

Q *What do you see as the most promising technologies of the future?*

A New technology will provide American forces greater capability in response to emerging needs. We're working to improve the link between new technology and operational needs. We're on the edge of operationally employing directed energy, information technology, and propulsion. These new technologies offer significant near-term potential to our military forces, particularly to our air and space forces.

We're also concentrating on nanotechnology and biotechnology. Research in nanotechnology explores the manipulation of matter at the molecular level to design novel materials, sensors, and systems. As for biotechnology, we're delving into biomimetics: learning more about how nature has solved a problem, and how we can emulate it. For example, pit vipers possess incredible heat-detecting capabilities that are much more sensitive than anything we can do without the need for cryogenic cooling. If we can harness technology found in nature, we can offer new capabilities to our men and women in uniform. We're also researching self-healing materials and self-assembly—capabilities of living cells. It may seem like far-

If we can harness the technology found in nature, we can offer new capabilities to our men and women in uniform. This may seem far-out stuff, but it's closer to reality than you might think. AFMC is a visionary command.

out stuff, but it's closer to reality than you might think. AFMC is a visionary command, dedicated to the continuous investment in transformational technologies so that America can save lives and retain its military edge in the global war on terror.

Q How does AFMC ensure that what you develop in the labs is what the warfighter needs?

A When I came to AFMC just about 21 months ago, one of my major focus areas was to improve the link from technology to warfighter. One of the first things we did was create a capabilities integration directorate on the headquarters staff, led by a two-star general, to provide a focal point for linking our science and technology efforts to the integrated capabilities review and risk assessment, or ICRR, process. The new directorate ensures we're focused on the capabilities gaps and requirements outlined in the ICRR process. We also focus on technology that provides high leverage and high payoff. We go through an analysis process to give us better insight into the right paths to breakthrough technology. For example, lasers were very advanced but not practical until we developed adaptive optics. Now they're becoming practical for military application.

There are tremendous opportunities to transform warfare this decade. As we study the initial Quadrennial De-

fense Review framework, our strategy is to align our research, development, science, and technology with the Air Force core missions: persistent C4ISR [command, control, communications, computers, intelligence, surveillance and reconnaissance], global mobility, and rapid strike. These missions fit closely with the chief of staff of the Air Force's coalescing constructs: persistence, cursor over the target, and one time of flight.

Persistent C4ISR is the ability to "stare" from a designated sensor, platform, or combination of platforms. In order to meet this core mission, we need connectivity between space, near-space, air, and terrestrial platforms. The platforms and systems must be networked, self-cueing, and, in essence, must talk with each other to give the effect of 24/7 C4ISR. When a threat occurs, our interconnected systems must present it in a way people can understand; it must look like the battlespace, and it must make sense to the decision makers.

The core mission of global mobility requires a global infrastructure, interconnected systems, total asset visibility, and seamless inter-modal transportation. The global mobility system must know where everything is located and be able to move materiel seamlessly between air, ship, train, and truck. Global mobility must be interconnected with command and control in order for combatant commanders to plan and execute combat operations.

By successfully accomplishing these missions, the Air Force is able to provide rapid strike using platforms that include a loitering aircraft equipped with precision-guided

Gen. Martin on the flightline at Wright-Patterson Air Force Base, Ohio.



weaponry. And in the future we'll be able to provide hypersonics, airborne lasers, or space-based kinetic or directed-energy systems.

Q *You've stated that one of the biggest challenges AFMC faces is providing better support for Air Force major commands, including Air Mobility Command—AMC. Which areas are you currently focused on improving? How has your organization responded to provide better support to major commands during your tenure?*

A Several times a year, I meet with my counterparts at each of the other major commands to find out what they need from AFMC and whether we're delivering on our promises.

Last July, I met with the leaders of AMC to review programs, discuss sustainment issues, and look for ways to better support our air mobility warriors. We addressed the positive steps being taken to ensure that the C-130J Hercules tactical transport aircraft would be ready to perform in a combat environment by the end of 2004. We discussed enhancing the communications for passengers on the C-32 and C-40 aircraft, and sustainment approaches for the Tunner and Halvorsen aircraft cargo loaders. It's meetings like these that have helped AFMC and the acquisition community to better understand the needs of AMC and our other major commands in the areas of acquisition and sustainment.

I mentioned earlier the unprecedented sustainment support being provided by our logistics centers. That's probably the area where we have the most day-to-day impact on the other major commands, and our depot workforce is an impressive team of professionals.

Q *What are some lessons learned from Operation Enduring Freedom and Operation Iraqi Freedom? How does interoperability fit into the picture?*

A It really starts with a better understanding of how we've accomplished things in the past and an honest assessment of what we could do better. When we look at lessons learned, we need to look at a 12-year period involving five conflicts, with each conflict being characterized very differently. Yet when I look at these conflicts in total, some key areas emerge that require our focused efforts.

Number one: I think we all agree that we need global access. Who would have thought that you could have attacked Afghanistan, a land-locked country, and you were going to have to go over Pakistan to get there? Or that you would go over Azerbaijan, Turkmenistan, Kazakhstan, Uzbekistan—all part of the former Soviet Union—and

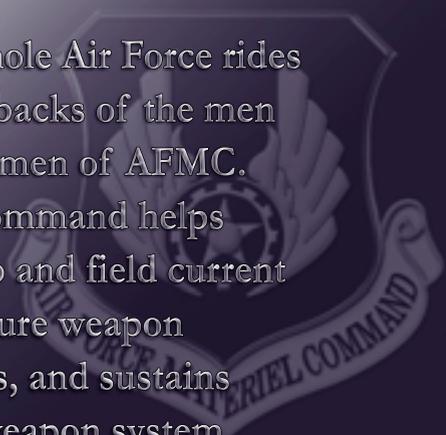
that some would not only allow you to fly over their territory, but also to operate in-country bases? Global access is very important to us, particularly when we start to talk about the global war on terror.

The Air Force needs to conduct sustained operations from many bases simultaneously, and to do that we need the right levels of expeditionary combat support troops: security forces, communications, services, medical support, fuels. Despite the challenges, we have operated successfully during operations Enduring Freedom and Iraqi Freedom from 36 different bases.

There's no question about the force multiplier effect of the Combined Air Operations Center, the hub for controlling all joint and coalition air operations. The more we grow as a joint and combined air team, the more we realize that we need visual awareness of the battlespace for our senior leadership to make informed decisions instantaneously. We need fully integrated planning and execution. We learned from Anaconda [*a March 2002 battle in Afghanistan's Shahikot Valley*] that it can't be parallel. It can't be sequential. All of the military services must be integrated in the planning and execution from the get-go.

Q *Currently, the AFMC workforce comprises about 80,000 military and civilian employees. Given the increased operations tempo of the last few years, what kind of management strategies are in place to enable your workforce to meet their goals and keep up the accelerated work schedule?*

A We're really busy, and I'm proud of our airmen and Air Force civilians for what they do every day. I often say that the whole Air Force rides on the backs of the men and



The whole Air Force rides on the backs of the men and women of AFMC. This command helps develop and field current and future weapon systems, and sustains every weapon system employed by our Air Force.

women of AFMC. To keep our large workforce focused on the right priorities, I think it's critical to have clear goals and standards. I often reiterate these goals along with our command mission, vision, and strategic principle.

We've also restructured the command in an effort to eliminate stovepipe organizations focused on a particular weapon system or platform. Instead, we are bringing similar systems together under the same organization to benefit from synergistic working relationships. For example, we brought the F-15, A-10, F-117, and F-16 offices and others together under a Fighter/Attack Systems Wing. Our new wing structure will ultimately save money by eliminating duplicate efforts, provide our people a productive environment, and make us more identifiable to the rest of the Air Force.

As part of the restructure, we're defining REUs—resource earning units—across the command. When the Air Force stands up a C-130 squadron, that squadron comes with set resources including aircraft, pilots, navigators, flight engineers, loadmasters, maintenance personnel, etc., all calculated to enable that unit to fly a certain number of missions in both training and contingency operations in support of a joint force commander. The squadron comes packaged in an REU based on the type and number of aircraft, mission, and other factors.

AFMC has no equivalent REU structure for its program offices. In other words, we don't have a clear and simple understanding of the incremental contribution of each person to the mission of a program office. So when we're asked to stand up new program offices in AFMC, the resources come from some other program or programs—out of hide—and then we hire a certain number of additional contractors to help, and we charge those costs to the major commands funding the acquisition program. Further, when we go through reduction-in-force drills, we end up justifying each person from the bottom up and always pare off 5 to 10 percent.

What we must do instead is describe our program organizations in an REU concept where each earns a certain number of people and specialties by its existence, which then means that we have a "force structure" mindset: if you want a new program, you authorize the right number of military and Air Force civilian people, and then you supply them. The beauty is that if you are capped in



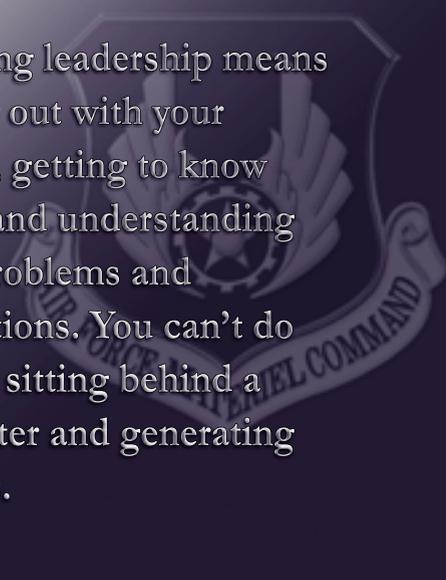
Martin chats with airmen on the flightline at Wright-Patterson AFB.

human resources, you will think very carefully about starting new programs without divesting yourself of other programs or transforming the way in which you aggregate legacy program offices.

Q *You have specific workforce development areas on which you focus. Could you please tell us about a few of the key areas?*

A First, there's force development. Our people are vital to everything we do across AFMC, and we must focus on the professional development of each military member and Air Force civilian—assignments, career progression, deployments, advanced Air Force and academic education, job training, supervisory training, and so on. We'll continue to work closely with the Air Force installations and logistics and the Air Force acquisition communities to complete career development templates for all our military and civilian specialties.

In terms of the junior force, I initiated a study last year. The junior force is defined as officers, enlisted, and civilian members less than 30 years of age or with less than eight years of military experience. The findings were stark but not surprising: there's a bit of a generation gap in AFMC. The junior force wants to feel valued and appreciated by being given challenging assignments, purposeful



Inspiring leadership means getting out with your people, getting to know them, and understanding their problems and frustrations. You can't do that by sitting behind a computer and generating e-mails.

training, and career opportunities. But their motivations differ from those of their supervisors. The challenge lies in training our supervisors to develop this next generation and bring the junior force into the fold with their spirit and motivations intact. We've stood up junior force councils on our installations to enable our younger members to communicate directly with senior leadership. We've also developed toolkits for our supervisors to highlight necessary resources and train them to effectively lead, mentor, and recognize the junior force. Retention of the junior force is essential to AFMC's success, and by effectively training and mentoring our junior force, we can generate unity and enthusiastic support of the AFMC mission.

Safety and Wellness: Every airman and Air Force civilian, is a precious resource. When we lose someone through a mishap, health situation, or death, there are far-reaching effects to the mission, to the team members, to the unit, to the individual's family, to our Air Force family.

I want to institutionalize a "wingman concept" as articulated by our secretary and chief of staff. As wingmen, we watch out for each other, care for each other, and help each other in times of stress. But that can't be taken for granted. Inspiring leadership is key, and that means getting out with your people, getting to know them, and understanding their problems and frustrations. You can't do that by sitting behind a computer and generating e-mails. It's personal, it's face-to-face, it's sincere, and it's direct. Personal involvement at all levels can instill a stronger sense of camaraderie and worth, both of which are vital to our success.

Physical Training and Fitness: I want to emphasize physical training and overall fitness. For our military members, the objective is to not only pass the fitness test, but

also to prepare for duty under austere and strenuous deployment conditions. That's why we call our program "Fit to Fight." And I am committed to inspiring a higher level of health and fitness within our Air Force civilian workforce as well.

Q *You've made a distinction between the headquarters AFMC mission and the AFMC mission. How are the two missions different? How does making this distinction improve customer service?*

A The mission of Air Force Materiel Command is to "deliver war-winning expeditionary capabilities to the warfighter through technology, acquisition support and sustainment." At the headquarters, we play a supporting role as our field organizations achieve that mission. The mission of the headquarters is to "shape the workforce and infrastructure to develop, field, and sustain war-winning expeditionary capabilities." We support our field organizations by providing policy, allocating resources, and overseeing performance. The separate HQ AFMC mission statement clearly focuses our HQ airmen and Air Force civilians on their role.

To further emphasize the different missions of the field and the headquarters, I also reorganized our headquarters. For example, we created the capabilities integration directorate, which is responsible for AFMC's development mission. This directorate is a consolidation of the requirements, acquisition excellence, and intelligence directorates, and is the focal point for science and technology. HQ AFMC now has a single office responsible for integrating science and technology, intelligence, modeling and simulation, and incorporating them into the capabilities produced by our AFMC acquisition process.

Q *From your unique perspective, how can DAU improve or enhance the curriculum to better support the AFMC workforce? What would you like to see added to the current curriculum to better prepare people for the realities of your workplace?*

A I really appreciate the work DAU has done to automate and make widely available the very best acquisition training for our people. In fact, we are looking at DAU as a benchmark for some of the training we know we need to deliver to AFMC people. What I'd ask is that DAU continue to strive to make acquisition training as realistic and tied to current operations as possible. We in AFMC are very grateful for the opportunity to take advantage of the many outstanding DAU courses which make us better professionally and help us achieve our mission of delivering "war-winning capabilities ... on time, on cost."