



Command Leaders Say YES to Engineers, Scientists

Tech. Sgt. Carl Norman
Air Force Materiel Command

Today, scientifically developed precision-guided weapons and unmanned aerial vehicles help fight terrorism around the globe. However, Air Force leaders are battling a shortage of the very engineers and scientists who created this weaponry.

The United States Air Force (USAF) is authorized to employ 13,300 military and civilian engineers and scientists. However, the service is short about 2,700 positions, or about 20 percent, according to Scott McLennan, Air Force Materiel Command (AFMC) system integration engineer. That is, if the USAF only had to fill current vacancies.

Another problem is also looming, says Gen. Lester Lyles, AFMC commander. A decade of downsizing and hiring freezes has made almost 70 percent of its civilian workforce, including engineers and scientists, eligible for retirement in the next five to seven years. This particularly concerns the AFMC because it employs the lion's share of Air Force engineers and scientists.

James Papa, AFMC Engineering and Technical Management director, reiterates this concern: "If we do nothing, we're going to see the whole problem aggravated by a continuing exodus of our senior people, and no seed corn to bring in behind them."

Another hurdle that AFMC and Air Force officials have to clear is competition for retaining engineers and scientists due to their demand in the outside commercial sector, says Papa. The nation as a whole has experienced lower and lower numbers of engineers coming out of colleges so engineers and scientists are becoming very valuable commodities, he says. "As a nation, we're going to be constantly fighting over a limited resource. In the case of the Air Force, we're going to be in the middle of that battle for talent."

If these trends are left unchecked, says Lyles, it could pose a possible readiness problem for AFMC and the Air Force. Losing its homegrown scientific and engineering capabilities could force the world's most prominent air power to contract out some of those needs, he warns.

"In AFMC, our mission is to provide the tools for the warfighter," says Lyles. "If we're not able to meet and understand the needs of the warfighter with our own organic capabilities, we're not going to be

as well off as we need to be. If we have to contract it out, I think we're going to lose. Whether it's in terms of dollars or the linkage to the warfighters and the rest of the Air Force, I think we will definitely lose."

Papa agrees, saying, "We're going to be taking on more and more risk of our development programs failing without proper oversight from our own organic workforce. We're going to be increasing the cost of doing business in some cases by having to contract out some of our engineering support. If we don't maintain

The Solution

To help bring the situation to the forefront of the Air Force's, the command leaders', and everyone else's minds, and to find solutions, Lyles declared 2002 as the "Year of the Engineer and Scientist" – more commonly known by the acronym YES.

The hope is that this initiative will remind everyone that engineers and scientists take concepts and ideas borne in laboratories and turn them into active and working weapon systems, Papa says. "Then they'll sustain those systems on

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our own organic capability to oversee the people we're asking to build our systems, we lose the expertise to define what our systems ought to be, and to make sure they're done properly. Then we'll wind up with systems that don't meet cost or schedule or have performance problems.

"It's through the scientist and engineer corps that we sustain what's very important – technological dominance on the battlefield," Papa says. "It goes beyond just producing state-of-the-art systems. We need to have a robust engineer and scientist corps to be on the leading edge and stay ahead of our adversaries."

Papa says that if the shortage goes unchecked, it could pose a readiness issue of sorts for America's warfighters. "With current vacancies and a large number of retirements in the next half decade potentially deteriorating the weapons acquisition and oversight process, we're not at the point we'd like to be, and that could ripple out to the field."

through aging and retirement." Part of AFMC's YES initiative is designed to focus the Air Force's attention at all levels of the problem. Command officials are aiming at the following three main engineering and scientific recruiting areas: workforce training and development, workforce size and mix, and motivation, according to Papa. "We're currently working initiatives and legislation in all these areas," he says. "It's just going to take some time to get what we need in place, and up and running."

For people considering engineering and scientific work for the Air Force, Papa says there are a lot of opportunities available. People in these fields are involved in leading edge activity and get increased responsibility sooner in their careers, he says. They also get involved in some very exciting things and contribute to the country's strength, well-being, and military power.

"We're never going to offer the kinds of opportunities like stock options and

gigantic six-figure salaries that maybe young people feel they can have in the dot-com world and other higher risk businesses," Papa says. "But there are a large number of folks who find working for the Air Force a rewarding career, and they are the kind of folks we're looking for."

Workforce training and development has a three-pronged approach to mapping out the engineers' and scientists' career path, says Papa. They look at what kinds of experience engineers and scientists should have in their career; what kind of training they should have, and when they should have it; along with what kind of career paths and promotion potential they should have.

"If there are any obstacles to engineers and scientists advancing in those career paths, we need to find ways to solve those," he says. The AFMC initiatives to attack those obstacles include increased educational opportunities and improvements in career development for military engineering officers, and making sure there is consistency in what is expected of them in terms of time spent getting education for promotion, he says.

The motivation area deals with making sure engineers and scientists are recognized for their accomplishments and provided fair compensation, Papa says. "We've looked at market comparisons and what engineers in industry are receiving in terms of starting salaries and middle salaries, and there's a gap there," he says. "We're trying to work the funding process with the air staff in building initiatives for recruiting and retention bonuses and salary adjustments that would make things more in line with the market we are competing in for engineers and scientists." Workforce size and mix involves having a good handle on what the command and Air Force requirements are for engineers and scientists.

Conclusion

While the AFMC is eleven months into the Year of the Engineer and Scientist, Papa says it is still too early to tell what impact the initiative has had on the problem. "It takes a while to understand whether we've turned anything around. But we're anticipating that by next year we'll be able to have a way to look back and see if anything has improved," he says.

To make sure enough emphasis is placed on the problem and that solutions are reached, Lyles says AFMC's Year of the Engineer and Scientist will continue into 2003. ♦

About the Interviewees



Gen. Lester L. Lyles is commander, Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio. The command conducts research, development, test and evaluation, and provides acquisition management services and logistics support necessary to keep Air Force weapons systems ready for war. Previously he served in various assignments, including vice chief of staff at Headquarters U.S. Air Force, director of the Ballistic Missile Defense Organization, commander of the Space and Missile Systems Center at Los Angeles Air Force Base, and commander of Ogden Air Logistics Center, Hill Air Force Base, Utah. Lyles has a master's of science degree in mechanical and nuclear engineering, Air Force Institute of Technology Program, New Mexico State University, Las Cruces; and a bachelor's of science degree in mechanical engineering, Howard University, Washington, D.C. He also graduated from the Defense Systems Management College, Fort Belvoir, Va.; the Armed Forces Staff College, Norfolk, Va.; the National War College, Fort Lesley J. McNair, Washington, D.C.; and the National and International Security Management Course, Harvard University, Cambridge, Mass.



James A. Papa, a member of the Senior Executive Service, is the director of Engineering and Technical Management, Headquarters Air Force Materiel Command (AFMC), Wright-Patterson Air Force Base, Ohio. He is directly responsible to the AFMC commander for the effectiveness of systems engineering and manufacturing policies and processes throughout the command. Papa is also responsible for career development programs for members of the AFMC engineering and technical management community. Papa has an extensive background in systems engineering and flight test. He served four years as U.S. Air Force flight test engineer. As a civil servant, he has worked as a project engineer on numerous aircraft and held key test and evaluation management positions. Prior to his current position, he was the executive director for the Air Force Flight Test Center, Edwards Air Force Base, Calif. He is a charter member of the Society of Flight Test Engineers and a member of the International Test and Evaluation Association. Papa has master's of science degrees in aeronautical engineering from the University of Southern California, and in management from the Sloan School of Management, Massachusetts Institute of Technology.

About the Author



Tech. Sgt. Carl Norman is the news service editor for the Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio. He provides headquarters and base-level news and newspaper advice to editors at the command's 10 bases across the United States. Previously, he was the non-commissioned officer in charge of public affairs at Arnold Engineering Development Center, Arnold Air Force Base, Tenn. He has also served as editor of the *Tailwind* at Travis Air Force Base, Calif.; the *Airlifter* at Dover Air Force Base, Del.; and the *Tip of the Sword* at Incirlik Air Base, Turkey. Norman is a distinguished graduate of the Noncommissioned Officer Preparatory School and a graduate of the Noncommissioned Officer Academy at Tyndall Air Force Base, Fla. He has attended the Defense Information School's basic journalist, editor, and joint public affairs supervisor courses. He has won several writing and editing awards along with other public affairs-related awards during his career.

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