Department Realigns Counter Improvised Threat Capabilities

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (FEB. 2, 2016)

WASHINGTON—The Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics has notified Congress of the department's intent to realign the Joint Improvised-Threat Defeat Agency (JIDA) under the Defense Threat Reduction Agency (DTRA).

This move is in response to the fiscal year 2016 National Defense Authorization Act (NDAA), which prohibited JIDA from standing up as a separate agency and directed the capabilities of JIDA be transitioned to a military department or an existing defense agency.

"Our core competencies have proven to be a mission enhancing capability that Congress and the department want to retain, incorporate, and leverage in future endeavors to support the warfighter at the speed and scope of the modern battlefield," said Army Lt. Gen. Michael H. Shields, JIDA's director. "The NDAA language does not change our scope, focus, customers, or mission. JIDA's support to the combatant commands and deployed U.S. joint forces will continue unchanged."

Preservation of Critical Missions

DTRA Director Ken Myers said the counter improvised-threat and the counter weapons of mass destruction missions will be preserved and enhanced under this transition. "Both these missions are critical for the safety of the nation's warfighters and to the national security of our country and that of our allies," he added.

Congressional defense committees asked for a complete transition plan not later than Aug. 21, 2016, with transition completed not later than Sept. 30. Based on these deadlines the two agencies will work collaboratively to develop and implement the transition plan.

"The NDAA language keeps us from growing headquarters functions—a consistent theme throughout the NDAA," Shields said. "More importantly, Congress clearly articulated their support to sustain the capabilities of JIDA."

Formerly the Joint Improvised Explosive Device Defeat Organization (JIEDDO), JIDA began transition as the department's newest combat support agency in March 2015 at the direction of the deputy secretary of defense to retain certain enduring counter-IED capabilities of JIEDDO.

Time of Transition

Since March, JIDA has been in a period of transition with a goal of October 2016 to reach full operational capability, and be aligned under the Office of the Undersecretary of Defense for Acquisition, Technology and Logistics. That transition effort will now shift to enable alignment under the authority, direction, and control of DTRA, which is an already established combat support agency.

"Realigning JIDA under DTRA will enhance upstream threat prevention and defeat capabilities," Myers said. "Other areas of collaboration will include sharing science and technology information, collaborating on security cooperation and building partner nation capacities, leveraging acquisition and information technology strengths, sharing expertise particularly in anticipating and identifying emerging threats, and improving each other's situational awareness regarding indications and warning on global threats."

Once transitioned under DTRA later this year, JIDA will be referred to as the Joint Improvised-Threat Defeat Organization.

Carter Tours Defense-Budget Innovation Programs of China Lake

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (FEB. 3, 2016)

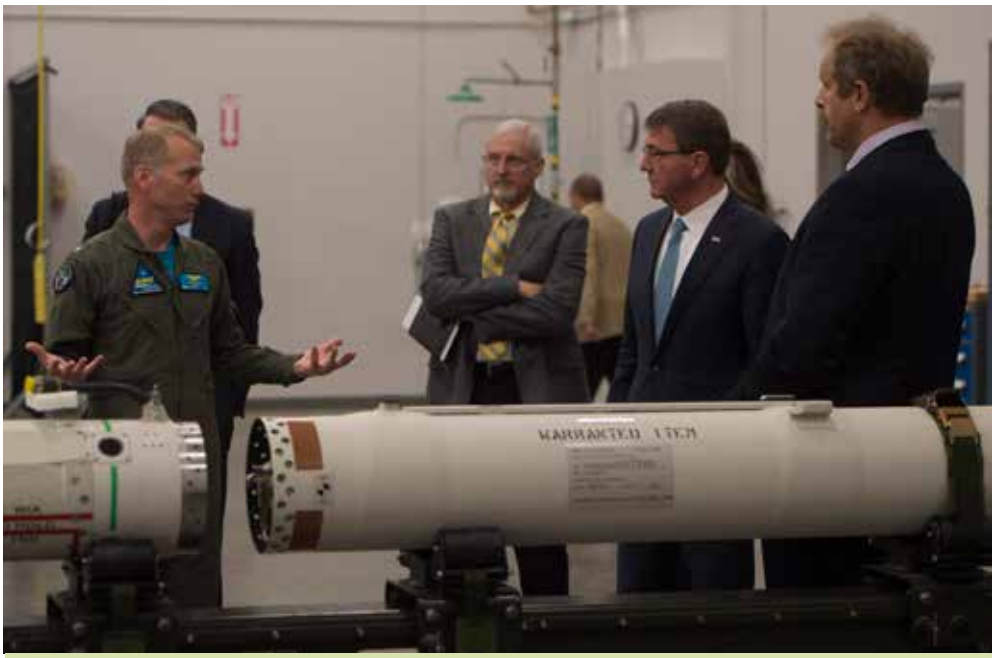
Terri Moon Cronk

WASHINGTON—The work performed at Naval Air Weapons Station China Lake signifies "the critical importance" the Defense Department places on science and technology for high-end and high-tech innovation, Defense Secretary Ash Carter told reporters at the California base yesterday.

The secretary briefed the media on the $582.7 billion defense budget request to be released next week as part of the White House's overall fiscal year 2017 budget request. "We are making sure that we're making the investments we need to do in modernization," Carter said of the budget request. "We're making sure we make the investments we need to make in training and readiness. We are making substantial investments in force structure as well, but there's a balance. … You'll see that balance struck in every domain."

China Lake is in the sweet spot of DoD's strategic transition, and with heavy emphasis on research and development, some of its high-end, innovative capabilities are reflected in his budget request, Carter said. "R&D spending [is] consistent with our determination to remain innovative."

The budget request reflects a major inflection point for DoD, and investments made today will keep the nation ahead of its



Defense Secretary Ash Carter receives a tour of the propulsion laboratory at Naval Air Weapons Station China Lake, Calif., Feb. 2, 2016. Carter is meeting this week with troops and other members of the defense community to preview the FY17 defense budget and its impact on the military.
DoD photo by Navy Petty Officer 1st Class Tim D. Godbee

principal potential antagonists who have high-end capability, he said, noting that the U.S. edge will be retained.

On the Cutting Edge

"Munitions, the lethality of systems, sensors—everything [China Lake does]—is part of the cutting edge, not only strategically and technologically, but [also] budgetarily," Carter said.

China Lake's programs point in the same direction of the best platforms and high-end, multiplying capability of U.S. ships, aircraft, and submarines, the secretary said. Developing high-end capability means making sure Navy ships, submarines, and aircraft are lethal and have the best weapons, he added.

Some of China Lake's programs represented in the budget include the Tomahawk cruise missile, the long range anti-ship missile, and the anti-radiation homing missile, the secretary noted.

Missile Innovation

The constantly evolving Tomahawk is flown to China Lake for testing, Carter said, adding that DoD wants to diversify the kinds of targets they can strike, from land attack to an anti-ship version so DoD can continue to diversify its suite of anti-ship missiles, "in the spirit of making everything we have lethal."

Adding $2 billion over the Future Years Defense Program (FYDP) will buy 4,000 Tomahawks and pay for advanced capability development to extend the cruise missile's life, he explained. The nearly $1 billion increase over the FYDP for the Long Range Anti-Ship Missile's "lethality" is big money for munitions, but very important, Carter said, adding that the budget request also calls for $418 million more than the FYDP to boost the anti-radiation homing missile's capability to strike enemy air defenses.

Greatest Capability, Lethality

"The point is these are large investments in the strategic future at the high end, aimed at making sure that our systems have the greatest capability, the greatest lethality in this case, of anybody else," the secretary said.

And those investments are critical as DoD continues to focus on the full spectrum of threats, including the Islamic State of Iraq and the Levant and up through those "who we hope never become antagonists of the United States, but are clearly competitors," he said.

"We have to balance and make sure [we are in] the best shape in our military for the amount of money we have in our budget," Carter said. "That's just a reality."

F-35 Program Moving Forward, Addressing Challenges

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (FEB. 11, 2016)
Lisa Ferdinando

WASHINGTON—The F-35 Lightning II Joint Strike Fighter Program is moving forward while addressing various challenges, the program's executive officer said Feb. 10.

"In the big picture, I would tell you that the program right now is accelerating, growing, and changing," Lt. Gen. Christopher C. Bogdan said at a media roundtable in Arlington, Virginia.

He detailed a number of challenges in the program, including incorporating fixes to address the current flight restrictions on lightweight pilots. "The mark of a good program is you find the problems, you solve the problems, and you keep the program moving forward without derailing it," he said.

The development program, he said, is scheduled to be completed in the fall of 2017. "What we're trying to do right now is work toward that very large $50-plus-billion contract and turn that into a modernization program," he said, adding that the program will have to be more efficient than has been the case in the last 15 or more years.

Addressing Issues, Moving Forward

The program currently has 419 deficiencies to be corrected, Bogdan said, explaining that the figure is "not that many." Despite the challenges, he added, the program is advancing.

"We are making progress," the general said. "Sometimes it's not as fast as we want. Sometimes it's messy. Sometimes we have setbacks."

The problems include issues with software, hardware, and the Autonomic Logistics Information System. He noted that 700 to 800 deficiencies already have been addressed.

Possible Dangers for Lightweight Pilots

Due to a possible risk of neck injury should ejection be necessary, lightweight pilots are restricted from flying the F-35s. For a pilot weighing between 103 and 136 pounds, Bogdan said, the odds of that person having to eject and then being injured in the ejection are one in 50,000.

The changes being implemented include a "heavy/light" weight switch, the general said. When in the "light" position, the seat would delay the parachute's extraction by milliseconds if the pilot had to eject, so the shock and stress on the neck would be reduced, he explained.

A restraining device also was sewn into the risers behind the parachute so that if a lightweight pilot were to eject at a "weird angle," it would stop the pilot's head from going backward, he added.

The head restraint and the seat switch have been tested, and they work, he said, adding that those fixes are ready to go into the field and in production by the end of the year.

Meanwhile, Bogdan said, the helmet's weight has to be reduced from 5.1 pounds to between 4.6 and 4.8 pounds. That change is lagging behind the other fixes by at least eight or nine months. "I don't like that," he added, noting that all three solutions must be in place before the restriction on lightweight pilots can be lifted.

Air Force Deferring Orders

Bogdan said the Air Force's recent announcement that it intends to buy 43, rather than 48, F-35s in fiscal year 2017 is "almost a non-news event." The Air Force is deferring purchases, not cutting airplanes, he explained.

The Navy kept its fiscal 2017 "C" models of the jet at four, and the Marine Corps went from 14 to 16 airplanes for the "B" model, he said, noting that amounts to a net loss of three airplanes for the U.S. [military] services.

The program plans to deliver more than 870 airplanes over the next six years, Bogdan said, adding that one can "barely measure" the reduction from the Air Force in that timeframe, he said.

The general said he is looking at the program "holistically," taking into account international partners as well as possible future customers.

DoD Officials Discuss Regional Deterrence, Nuke Modernization

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (FEB. 11, 2016)
Cheryl Pellerin

WASHINGTON—The administration's nuclear sustainment and modernization plan is what is needed for effective deterrence, and the plan is affordable if the Defense Department prioritizes it, senior defense officials told Congress yesterday.

Testifying before the Senate Armed Services subcommittee on strategic forces were Robert M. Scher, assistant defense secretary for strategy, plans and capabilities, and Arthur Hopkins, acting principal deputy assistant defense secretary for nuclear, chemical, and biological defense programs. Effective deterrence, Scher said, requires that U.S. nuclear capabilities and posture allow the nation to implement U.S. defense strategy, preserve the strategy's credibility, and reinforce overall strategic stability.

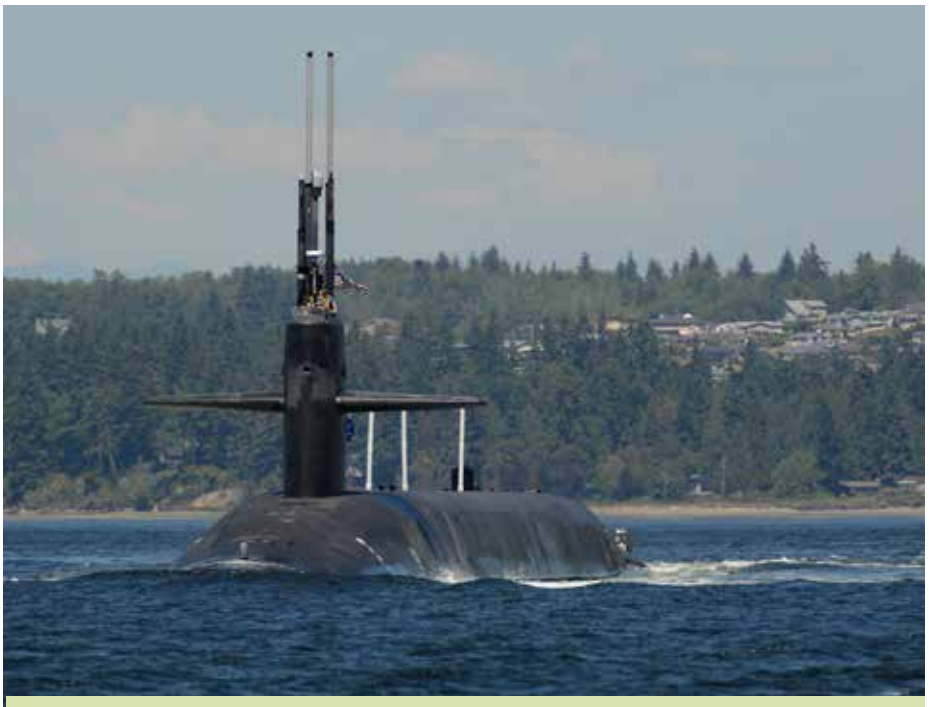
"Our approach is to maintain a deterrent that is inherently robust and stable rather than one that is simply reactive to every action of a potential adversary," the assistant secretary said.

Full Nuclear Triad

The best way to do this is to sustain a full nuclear triad—strategic bombers, intercontinental ballistic missiles, and submarine-launched ballistic missiles—and dual-role aircraft with a range of nuclear explosive yields and delivery modes, he added.

Dual-capable aircraft, or DCA, are allied and U.S. fighter aircraft that can perform both conventional and theater nuclear missions.

"The triad and DCA provide the credibility, flexibility, and survivability to meet and adapt to the challenges of a dynamic 21st century security environment," Scher added, "without the need to mirror every potential adversary system-for-system or yield-for-yield."



USS Maine prepares to transit the Hood Canal as it sails back to its homeport of Naval Base Kitsap–Bangor in Bangor, Washington, June 17, 2015. *Maine* is one of eight ballistic missile submarines stationed at the base providing the survivable leg of the strategic deterrence triad for the United States.
Navy photo by Petty Officer 1st Class Kenneth G. Takada

Regional Deterrence

The U.S. strategy for deterring a large-scale nuclear attack is well established, he added, but deterring nuclear use in regional conflicts may be a more immediate challenge for the nation.

"We must be able to deter not only large-scale nuclear attacks—the predominant focus during the Cold War—but also limited nuclear attack and deliberate nuclear escalation by an adversary that might arise out of a conventional regional conflict," Scher said.

In his remarks, Hopkins, also acting staff director for the Nuclear Weapons Council, said the council has developed a strategic plan for integrating all three components of the nuclear enterprise—warheads, platforms, and infrastructure.

"Portions of the plan are well underway, including production of the W761 refurbished warhead and the design engineering for the W88 warhead modernization," he said. These are for the Navy's submarine-launched ballistic missiles and the B61 Mod 12 bomb life-extension program for strategic missions and extended deterrence, Hopkins told the panel.

Modernizing Warheads

In fiscal year 2017, the National Nuclear Security Administration will continue to deliver W761 warheads for the Navy's Trident D5 missiles and will complete production in FY 2019, he said, and the W88 warhead alteration effort, also for the D5 missile, is on schedule to deliver the first production unit in December 2019.

"The B61 bomb life-extension program is also on schedule to deliver a first production unit in March of 2020," Hopkins said.

Scher said the B61, the remaining gravity bomb for the nuclear forces, remains strategically important. "We want to make sure that we have a full range of options, range of yields and delivery systems, and as a result that's a critical piece of the air leg of the triad," he said.

Hopkins added, "One of the most significant advantages of the B61 modernization, which is going to produce the B61-12, is that it'll take the place of four different variants of the existing B61. So there's a certain degree of efficiency and ... safety associated with reducing the numbers and types of weapons in the inventory."

Funding Delivery Systems
Modernizing nuclear delivery platforms is essential to nuclear deterrence, Hopkins said, noting that in fiscal 2017 the department will continue funding for several delivery systems.

One is the Ohio-class submarine replacement and its Trident II D5 life-extended missile, he said. Another is sustainment of the Minuteman III intercontinental ballistic missile and its follow-on capability, the ground-based strategic deterrent. Others are upgrades to the B-2 and the B-52H heavy bombers, the development of a long-range strike bomber, and the development of a long-range stand-up cruise missile to replace the aging air-launched cruise missile, Hopkins said.

Requirement to Modernize
Scher said the modernization schedule is closely tied to the estimated lifetime of existing systems.

"After several years of delaying the modernization ... ," he said, "we have reached a point where virtually every leg of the triad is nearing the end of its anticipated service life, and we've extended as many as we possibly can as long as we can."

Scher told the panel, "What we're seeing now is a requirement for the department to modernize the delivery systems and to extend the lives of the various nuclear weapon components."

Budget Request Trims Modernization; Procurement Funds Buy Capability

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (FEB. 11, 2016)
Jim Garamone

WASHINGTON—Modernization took the biggest hit in the Defense Department's fiscal year 2017 budget request, but the $102.5 billion in the procurement account can purchase a lot of capabilities, Mike McCord, DoD's chief financial officer, told reporters at a Feb. 9 Pentagon news conference.

As part of the Bipartisan Budget Act signed in November, the Defense Department had to make up $22 billion in its budget. "Modernization took the brunt of the reduction," he said. "I would say not in a stupid way. We didn't terminate programs. We didn't break multi-year [procurements]."

The Act gave DoD two years of relief from sequestration and gave defense planners most of what they believed they needed for the years ahead, McCord said.

Defense officials really didn't touch compensation, force structure, or readiness in the fiscal year 2017 defense budget request. There are no civilian reductions-in-force or other cuts to personnel, "that would involve sort of flailing around and breaking things," McCord said. "We were careful and thoughtful in how we approached this."

Aviation Systems
The department took some risk in modernization. There are 24 fewer UH-60 Black Hawk helicopters in the budget and five fewer F-35 Lightning II Joint Strike Fighters for the Air Force. There are fewer V-22 Osprey tilt-rotor aircraft. Overall, reduced aircraft accounts saved about $4 billion, McCord said. There is also less money in the budget for shipbuilding, the comptroller said.

But even with these cuts, there is still $102.5 billion in procurement proposed in FY 2017, and that can buy a lot of capabilities, he said.

While there will be fewer F-35s, DoD is still asking for 63 of the fifth-generation aircraft. The Marine Corps would get 16 of the F-35B short-takeoff/vertical landing models, the Navy would get four of the F-35C carrier models and the Air Force would get 43 of the F-35A conventional models.

Again, while there will be fewer V-22s requested, DoD still budgeted for 16 of the tilt-rotor aircraft.

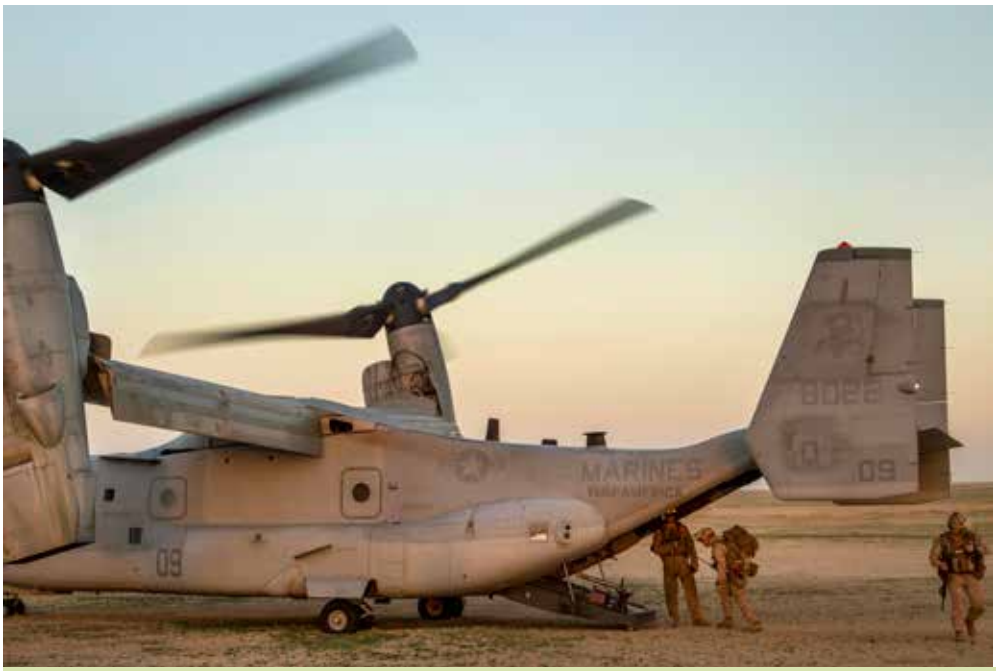
The military services are asking for 14 C-130J Hercules airlifters. The aircraft has uses in conventional and special operations roles.

The Air Force has budgeted $3.3 billion for 15 KC-46A tankers.

In unmanned aircraft, DoD is asking for 24 more MQ-9 Reapers, two more RQ-4 Global Hawks, and eight RQ-7 Shadows and RQ-21 Blackjacks.

The proposed budget has room for 52 AH-64 Apache helicopters, 22 CH-47 Chinooks, and 36 Black Hawks.

The Navy is asking for six E-2D Hawkeye airborne early warning aircraft.



Marines board an MV-22 Osprey during a tactical exercise to recover aircraft and personnel at an undisclosed location in Southwest Asia, Jan. 25, 2016.
Marine Corps photo by Cpl. Akeel Austin

The Marine Corps wants 24 more AH-1Z Viper or UH-1Y Venom attack helicopters.

The Navy has asked for 11 more P-8A Poseidon maritime patrol aircraft, and two more F/A-18 Super Hornet jets.

Planning for tomorrow continues with the Air Force budgeting $2.1 billion for the Long Range Strike Bomber.

Ground Systems
DoD proposes spending $9.8 billion in fiscal year 2017 for ground systems, which includes weapons; combat vehicles; and light, medium, and heavy tactical vehicles.

The Army plans to buy 1,828 joint light tactical vehicles, 481 heavy tactical vehicles, and 1,100 medium tactical vehicles. The Army is upgrading the M1 Abrams battle tank and M109 Paladin family of howitzers. The Service is also replacing the venerable M113 armored personnel carrier with the armored multi-purpose vehicle.

The Marine Corps is buying light and medium tactical vehicles, and investing in the amphibious combat vehicle.

Missile Systems
Ballistic missile defense program spending totals $8.5 billion in the proposed 2017 budget. Tactical missile defense accounts for $1.8 billion, tactical ballistic missile defense is pegged at $1 billion, and $5.7 billion is aimed at the ballistic missile defense system. These include systems such as the Terminal High-Altitude Area Defense system, the Patriot PAC-3, and Aegis systems.

To replenish missile stocks depleted by the fight against the Islamic State of Iraq and the Levant, the FY 2017 budget request asks for $13.9 billion for everything from AIM-120 Advanced Medium-Range Air-to-Air Missiles to Joint Air to Surface Standoff Missiles to Joint Direct Attack Munitions. The department is also asking for 5,846 AGM-114 Hellfire missiles.

Sea, Space Systems
Shipbuilding and maritime systems take up $27 billion of the procurement total with $12.5 billion going for surface combatant ships, $7.8 billion for submarines, and $2.9 billion for support ships.

The Navy has asked for $2.7 billion for building the next two nuclear aircraft carriers—the *USS John F. Kennedy* and *USS Enterprise*. The Service has also asked for $3.5 billion for two more Arleigh Burke-class destroyers and $1.6 billion for two more littoral combat ships. They have also budgeted $1.6 billion for an America-class amphibious assault ship.

Around $5.3 billion is going to two more Virginia-class attack submarines. The Navy has also asked for $1.8 billion for the Ohio-class nuclear missile submarine replacement.

Finally, in space the department has budgeted $7.1 billion. This includes $3.2 billion for satellites, $1.2 billion for support, and $2.7 billion for launches.

FLA Program Takes Flight

DEFENSE ADVANCED RESEARCH PROJECTS AGENCY OUTREACH (FEB. 12, 2016)

They may not have zoomed flawlessly around obstacles like the Millennium Falcon did as it careened through the hull of a crashed Star Destroyer in Star Wars VII, but the sensor-loaded quadcopters that recently were tested in a cluttered hangar in Massachusetts did manage to edge their way around obstacles and achieve their target speeds of 20 meters per second. Moreover, the quadcopters were unmanned ... and real. Thus was the initial phase of data collection for DARPA's Fast Lightweight Autonomy (FLA) program recently deemed an encouraging success.

DARPA's FLA program aims to develop and test algorithms that could reduce the amount of processing power, communications, and human intervention needed for unmanned aerial vehicles (UAVs) to accomplish low-level tasks, such as navigation around obstacles in a cluttered environment. If successful, FLA would reduce operator workload and stress, and allow humans to focus on higher level supervision of multiple formations of manned and unmanned platforms as part of a single system.

FLA technologies could be especially useful to address a pressing surveillance shortfall: Military teams patrolling dangerous overseas urban environments and rescue teams responding to disasters such as earthquakes or floods currently can use remotely piloted unmanned aerial vehicles (UAVs) to provide a bird's-eye view of the situation. But, to know what's going on inside an unstable building or a threatening indoor space often requires physical entry, which can put troops or civilian response teams in danger.

The FLA program is developing a new class of algorithms aimed at enabling small UAVs to quickly navigate a labyrinth of rooms, stairways, and corridors or other obstacle-filled environments without a remote pilot. The program seeks to develop and demonstrate autonomous UAVs small enough to fit through an open window and able to fly at speeds up to 20 meters per second (45 miles per hour)—while avoiding objects within complex indoor spaces independent of communication with outside operators or sensors, and without reliance on GPS.

DARPA researchers recently completed the first flight data collection from the common quadcopter UAV platform that three research teams are using for the program. The flight test data validated that the platform—which uses a commercial DJI Flamewheel 450 airframe, E600 motors with 12" propellers, and 3DR Pixhawk autopilot—is capable of achieving the required flight speed of 20 meters per second while carrying high-definition onboard cameras and other sensors, such as LIDAR, sonar, and inertial measurement units. During the testing, researchers also demonstrated initial autonomous capabilities, such as "seeing" obstacles and flying around them at slow speed unaided by a human controller.

"We're excited that we were able to validate the airspeed goal during this first-flight data collection," said Mark Micire, DARPA program manager. "The fact that some teams also demonstrated basic autonomous flight ahead of schedule was an added bonus. The challenge for the teams now is to advance the algorithms and onboard computational efficiency to extend the UAVs' perception range and compensate for the vehicles' mass to make extremely tight turns and abrupt maneuvers at high speeds."

The three performer teams are Draper, teamed with the Massachusetts Institute of Technology; University of Pennsylvania; and Scientific Systems Company, Inc. (SSCI), teamed with AeroVironment.

The test flight and data collection took place at Otis Air National Guard Base, Cape Cod, Massachusetts, in a former aircraft hangar that was transformed into a warehouse setting with simulated walls, boxes, and other obstacles to test flight agility and speed. The test run also resulted in several crashes. "But the only way to achieve hard goals is to push physical systems and software to the limit," Micire said. "I expect there will be more flight failures and smashed quadcopters along the way."

With each successive program milestone flight test, the warehouse venue will be made more complicated by adding obstacles and clutter to create a more challenging and realistic environment for the UAVs to navigate autonomously.

"Very lightweight UAVs exist today that are agile and can fly faster than 20 meters per second, but they can't carry the sensors and computation to fly autonomously in cluttered environments," Micire said. "And large UAVs exist that can fly high and fast with heavy computing payloads and sensors on board. What makes the FLA program so challenging is finding the sweetspot of a small size, weight, and power air vehicle with limited onboard computing power to perform a complex mission completely autonomously."

The FLA program's initial focus is on UAVs, but advances made through the program could potentially be applied to ground, marine, and underwater systems, which could be especially useful in GPS-degraded or denied environments.

An FLA quadcopter self-navigates around boxes during initial flight data collection using only onboard sensors/software. DARPA's FLA program aims to develop and test algorithms that could reduce the amount of processing power, communications, and human intervention needed for unmanned aerial vehicles (UAVs) to accomplish low-level tasks, such as navigation around obstacles in a cluttered environment.

Media with inquiries should contact DARPA Public Affairs at outreach@darpa.mil.

DoD Officials Urge Continued Science, Technology Investments

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (FEB. 24, 2016)
Lisa Ferdinando

WASHINGTON—Investments in science and technology are critical in maintaining the nation's military edge in an increasingly competitive global arena, Defense Department officials told Congress today.

The United States is at a "pivotal moment in history" where investments in military technology are being made by "increasingly capable and assertive foreign powers," Stephen Welby, the assistant secretary of defense for research and engineering, told the House Armed Services Committee's subcommittee on emerging threats and capabilities.

Welby appeared at the hearing to discuss defense innovation to create the future military force. Other witnesses included Arati Prabhakar, the director of the Defense Advanced Research Projects Agency, or DARPA.

The United States is still the largest investor in research and development around the world, Prabhakar said in her written statement. "But unlike past decades, we are not alone in our excellent scientific and technical capabilities," she added.

Keeping the Edge, Meeting Future Challenges

"The challenge at DARPA and DoD is to create a "significant advantage for military and national security purposes against this competitive, shifting backdrop," Prabhakar told the panel.

"Our senior military and civilian leaders face a world of kaleidoscopic uncertainty today and into any foreseeable future," she said. "The daily fare is a noxious stew of violent extremism, terrorism, and cross-border criminal activity."

Welby said the goal of sustaining and advancing the nation's technological superiority in the current national security environment requires investments in sound research and development.

DoD laboratories have produced significant innovations in vital defense areas, he said, listing areas such as electronic warfare, propulsion, and weapons design.

"Maintaining this unique technical expertise within the department is critical for ensuring the department's ability to prepare for future threats," he said.

Investments in Personnel

Welby said when he visits laboratories and organizations, he meets young scientists and engineers who are pursuing technological innovations to meet the challenges that are emerging globally. The Defense Department employs more than 39,000 scientists and engineers in 63 defense laboratories, warfare centers, and engineering centers across 22 states, he noted.

"Our strength is in our people," Welby said. "We must recruit and retain the best and brightest military and civilian scientists and engineers, and harness their innovative spirits to give our military forces the warfighting edge."

The scientists and engineers are sustaining the department's ability to support and field militarily critical technology that often has no commercial equivalent, he said.

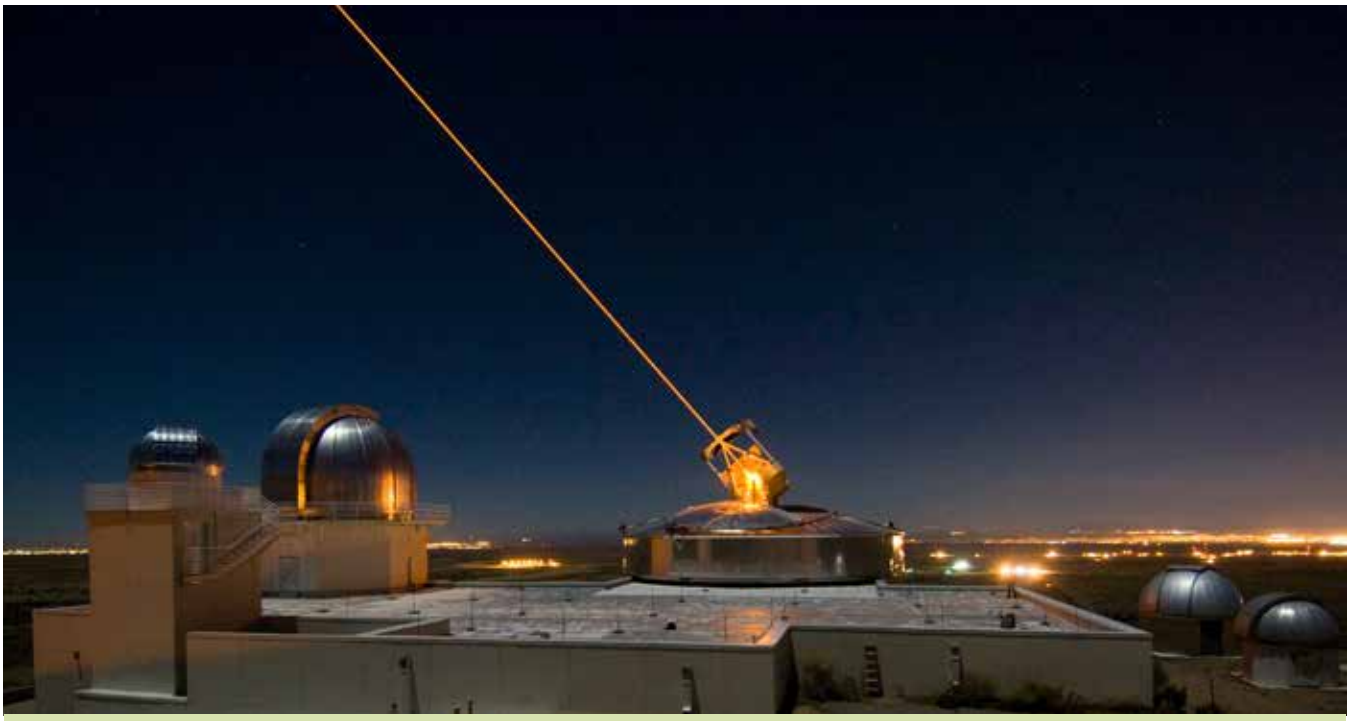
Prabhakar described DARPA personnel as a "team of about 200 extraordinary individuals" that propels the agency and revels in the opportunity to attack "pressing, nearly intractable problems—all in the context of public service."

DoD cannot innovate and bolster its future technological superiority from within the department alone, Welby told the subcommittee. He said that is why DoD's science and technology enterprise touches the broadest range of emerging concepts through engagement with academia, industry, and international partners, he noted. That keeps keep DoD "smart, knowledgeable, agile, and responsive in the face of new and emerging threats," he said.

Laser Weapons Development by 2023

ARMY NEWS SERVICE (FEB. 25, 2016)
David Vergun

WASHINGTON—Responding to lawmakers' questions about how close the Army is to developing offensive and defensive directed-energy weapons, Mary J. Miller responded: "I believe we're very close."



The Sodium Guidestar at the Air Force Research Laboratory's Starfire Optical Range resides on a 6,240 foot hilltop at Kirtland Air Force Base, New Mexico. The Army and Navy are developing their own laser weapons systems.
U.S. Air Force photo

Miller, deputy assistant secretary of the Army for Research and Technology, and other experts testified before the House Armed Services Committee's Subcommittee on Emerging Threats and Capabilities, Feb. 24. Miller's topic was the Army's Science and Technology, or S&T, Program for fiscal year 2017.

The Army's S&T effort is committed to pursuing high-energy lasers, she said. That effort has been used in an analysis of alternatives for the Indirect Fire Protection Capability program of record.

Now, that effort has been "aligned to transition into a program of record in the fiscal 2023 timeframe," she said. It's already planned and funded.

"Why that long?" she asked rhetorically. Because it's being done in a "step-wise demonstration of capability," she said. "We have to make sure the lasers work and do the full set of scopes against the threats we project. And those threats include the counter-rockets, counter-artillery, and counter-mortar as well as [Unmanned Aerial Vehicle] and cruise missile threats."

Miller explained that the Army wants to understand the lasers' full capabilities "before we offer it to a soldier."

Operators need to trust what lasers can do, she added. "Lasers have been promised for a long time, but they've never held up and delivered what was asked for, so the operators are rightfully skeptical," she pointed out. That's why the Army is taking lasers out into operational environments and testing them."

In the meantime, "there will be steps along the way where we spin off lesser capable laser systems that can do good things on smaller platforms. Those will come out soon," she concluded.

Dr. David Walker, deputy assistant secretary of the Air Force for Science, Technology and Engineering, Office of the Assistant Secretary of the Air Force for Acquisition, agreed with Miller's logic for step-wise rollouts. "We too have spun off lesser capable laser systems," he said, following Miller's remarks.

The Air Force is flying every day with lasers under its transport aircraft, using them as infrared countermeasure sys-

tems, "so we too spun off lesser capable laser systems; and as we get larger power outputs and better thermal management out of smaller package lasers, we will build those powers into defensive to offensive capability as well," Walker said.

Walker also said the Air Force is working with Special Operations Command to develop an offensive laser that will be fitted to AFSOC AC-130 gunships. Part of that technology, he said, includes "beam-steering, and power and thermal management."

The Navy's science representative described similar laser programs for ships, subs, and Marines.

A lawmaker asked if the Services are duplicating efforts.

Dr. Stephen Welby, assistant secretary of Defense for Research and Engineering, Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, replied that all activities of each of the Services are coordinated through the High Energy Laser Joint Technology Office.

That office "serves as a clearing house and center of coordination across all the Service departments to ensure each of our investments are aligned and not duplicative, and are building on each other in each of our domains and Service-unique issues," he explained. "We coordinate very well," he added, terming the effort part of the "third offset strategy."

A lawmaker then asked Welby what the third offset means.

He explained that laser programs are just a small part of the third offset, which is the Defense Department's endeavor to dominate the battlefield of the future with "asymmetric advantages." Other offset strategies include unmanned and autonomous systems, and cognitive warfare, he added.

The first two offsets involved Cold War efforts targeting the Soviet Union, the first being tactical nuclear weapons developed in the 1950s and precision weapons in the 1970s, he explained.

Work Finishes Trip Focusing on U.S. Nuclear Deterrent

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (FEB. 26, 2016)
Jim Garamone

WASHINGTON—Deputy Defense Secretary Bob Work observed the test of an unarmed Minuteman 3 missile at Vandenberg Air Force Base, California, last night, at the culmination of a trip to examine the progress of reforms in DoD's nuclear deterrent.

Vice Chairman of the Joint Chiefs of Staff Air Force Gen. Paul J. Selva and Navy Adm. Cecil D. Haney, the commander of U.S. Strategic Command, joined the deputy secretary for the launch. The warhead splashed down at the military's test range near Kwajalein Atoll more than 4,000 miles away. The crew that launched the missile are assigned to Minot Air Force Base, North Dakota, and Vandenberg.

F.E. Warren Visit

Prior to attending the test, Work visited airmen at F.E. Warren Air Force Base, Wyoming, where he assessed the progress made in reinvigorating America's most important military capability.

"I think you know that in 2014, we had an awful lot of issues that were identified in the nuclear deterrent and since that time we have done an awful lot to make sure that … we are improving and that that problem doesn't happen again," Work told reporters traveling with him.

Air Force officials said the test went well and the deputy secretary was pleased with the performance of the Minuteman 3, which entered the system in 1970. "The Minuteman system, as part of our nuclear triad, continues to meet our 21st-century deterrence and assurance requirements," Work said in a readout of the visit. "This operational test will provide the department with accuracy and reliability data that is essential to ongoing and future modifications to the weapon system."

Nuclear deterrence is the basis for strategic stability among great powers, the deputy secretary said. It is the U.S. position to move toward a world free of nuclear weapons, he said. But until then, "we're going to make sure that our deterrent is safe, reliable, secure, and effective, and that we will make sure that we maintain strategic stability with our … great power competitors," he added.

Improving the Health of the Force

Work was looking specifically at the progress in implementing 175 recommendations made in a report ordered by then-Defense Secretary Chuck Hagel in 2014. The report was the result of a study that followed press reports detailing shortcomings in the nuclear enterprise. About 80 percent of those recommendations have been implemented, Work said.

"A key focus is on the health of the force—the people," the deputy secretary said. "The people are our best asset of the

nuclear deterrent enterprise, just like they are in the whole department. If there's a secret weapon that the United States has, it is our people."

During his stop at F.E. Warren, Work spoke to junior enlisted personnel and officers to ensure they understand the importance of what they do, whether they have the resources they need, and if they have seen a difference since the department began implementing the reforms.

Need for Collaboration

While in California yesterday, the deputy secretary spoke at In-Q-Tel Summit in San Jose. In-Q-Tel is a not-for-profit firm working to ensure that U.S. intelligence agencies have the latest technologies.

Work spoke about the importance of partnering with the commercial technology base, DoD's investments in the fiscal 2017 budget request, and the development of the third offset strategy. DoD began a pilot program with In-Q-Tel last year. Work noted the collaboration allowed the department to develop innovative solutions for some of its most challenging problems. "Last year, we invested $10 million," he said. "In the '17 budget, we will invest $40 million."

The stop in San Jose was part of DoD's commitment to ensuring it stays ahead of competitors in a rapidly changing world, he said. It also signals the department's effort to reach out and attract a new generation of Americans to serve their country, the deputy said.

"In Silicon Valley, we're seeing a real explosion in progress," Work said. "The department sees tremendous promise in [artificial intelligence] and autonomy as we look to achieve technological overmatch against our adversaries."

He added, "The third offset strategy is based on the premise that advances in artificial intelligence and autonomy will allow the joint force to develop and operate advanced joint, collaborative human-machine battle networks that synchronize simultaneous operations in space, air, sea, undersea, ground, and cyber domains."

Carter: DoD Must Innovate to Lead in a Competitive World

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (MARCH 1, 2016)
Cheryl Pellerin

WASHINGTON—The Defense Department doesn't get to choose the many global challenges it faces, but it can set a course for the future that embraces innovation and keeps DoD competitive in a competitive world, Defense Secretary Ash Carter said today.

The secretary spoke at San Francisco's Commonwealth Club, the nation's oldest public affairs forum, as part of a trip to California and Washington State to discuss technology, cybersecurity initiatives, and other topics with tech leaders.

"I came from Washington, where last week I laid out our defense budget for 2017," he told the audience. "In that budget, we are and we need to take a long view in our mission to defend the United States. We have to, because even as we fight today's fights, we must also be prepared for what might come 10, 20, or 30 years down the road," Carter said.

Evolving Challenges

Five evolving challenges—Russia, China, North Korea, Iran, and terrorists—drive DoD's planning and budgeting, he said. "We don't have the luxury of choosing among these challenges, but we do have the ability to set a course for the future: a future that's uncertain, but will surely be competitive and demanding of America's leadership, values, and military edge," he said.

A common theme across the budget is that DoD must innovate to be competitive in a competitive world—one of the reasons the department will spend $71.8 billion on research and development next year alone, Carter said.

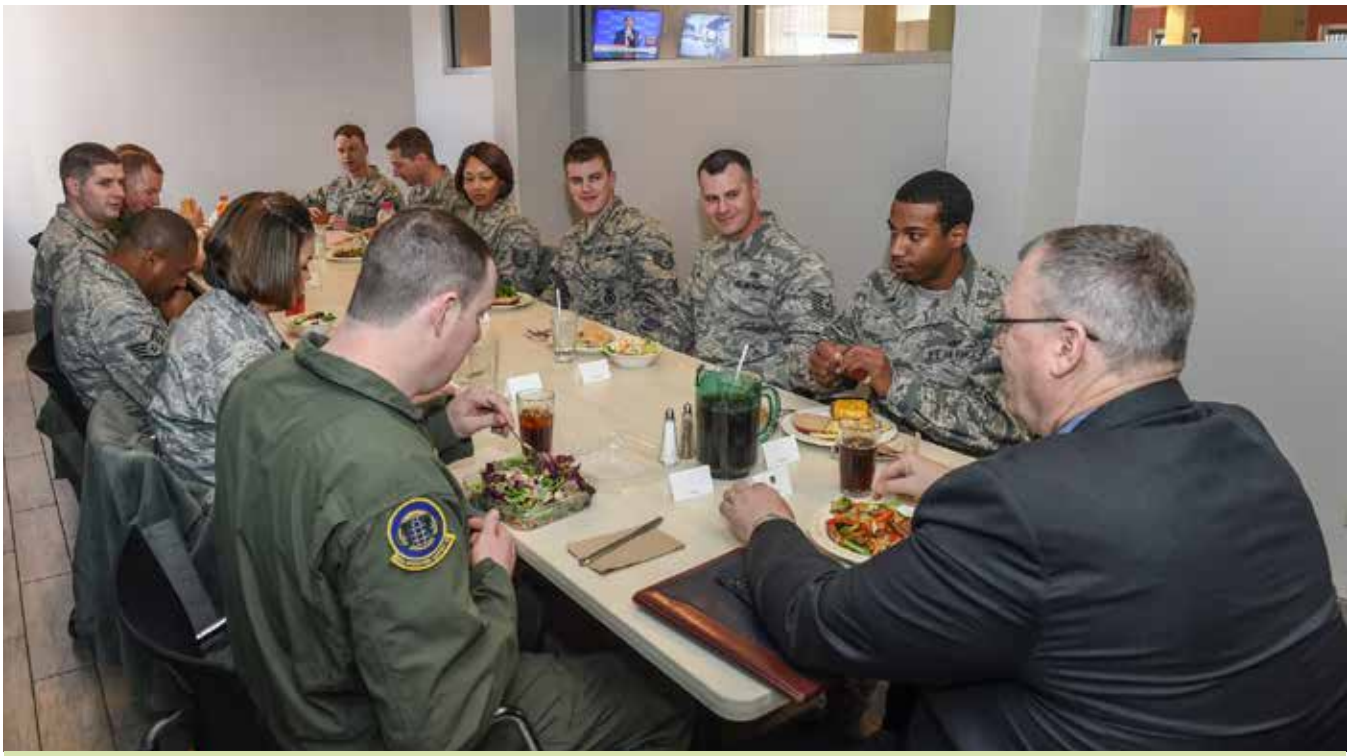
This will fund work on cybersecurity, advancing undersea capabilities, and developing new hypersonic missiles that can fly more than five times the speed of sound, he noted, along with advances in artificial intelligence, autonomy and robotics, and new strategic approaches to preventing and winning conflicts against 21st century threats.

Strong Partnership

"Our budget also invests hundreds of millions of dollars next year in building and rebuilding bridges with America's technology and business community, including here in the Bay Area, because we need a strong partnership to succeed in the 21st century," Carter said.

The department is reaching out in California through its Defense Innovation Unit-Experimental, or DIUx, which opened last year in Mountain View to explore ways for DoD to tap into the region's innovation ecosystem and build relationships with local companies.

In San Jose, DoD is co-funding the Manufacturing Innovation Institutes with the private sector in key technology frontiers, including one focused on flexible hybrid electronics.



Deputy Defense Secretary Bob Work sits down to lunch with airmen at the Chadwell dining facility on F. E. Warren Air Force Base in Wyoming, Feb. 24, 2016.
DoD photo by Army Sgt. 1st Class Clydell Kinchen

More than 30 of the department's partner organizations have a presence between Silicon Valley and the Golden Gate Bridge, he said, including companies from Apple to Lockheed Martin to Xerox.

"We're making these investments here because our military must always be capable enough to deter even the most advanced future threats in a changing and competitive world," Carter said. "And this means that, just like competitive companies here in the Bay Area, we have to innovate and seize opportunities in everything we do."

Critical Domains

In critical domains, including cyberspace, continuing to ensure the free movement of information, goods, and services make it critical for DoD and the private sector to work together, he added.

Working together, DoD, academia, and industry created the Internet, Carter said.

This has enabled boundless transformation and prosperity across all sectors of society, making many things easier, cheaper, and safer, the defense secretary added, noting that the same technologies present a degree of risk to users.

"Like so many Bay Area businesses, the Defense Department relies on networks heavily, which is why defending our networks and weapon systems is job one for the Department of Defense in cyberspace," he said.

DoD's second mission in cyberspace is to help other agencies defend the nation against cyberattacks from abroad, Carter added, especially if they would cause loss of life, property destruction, or significant foreign policy and economic consequences.

"The third mission is to provide offensive cyber options that can be used in a conflict," he said, "as we're doing now against [the Islamic State of Iraq and the Levant]."

Keeping Systems Secure

Part of the defense budget for cyber goes to build and train Cyber Mission Forces—talented individuals who hunt down intruders, red-team DoD networks, and perform the forensics that help keep DoD systems secure, Carter said.

That's just one way the American military is helping protect U.S. interests in cyberspace and preserve access to a free, open, and secure Internet, "so businesses can continue to innovate and individuals can continue to interact without having to live under any threat," the secretary said.

As defense secretary, Carter said his mission "is ensuring our military can defend our country and make a better world, and DoD is at its best when it has the best partners."

Getting that right depends on getting the right people, Carter said, and the department is creating new ways to bring talent from the technology community into DoD, even if only for a time.

Building Bridges

The Defense Digital Service, for example, brings talent in from the U.S. technology community to help solve some of the Pentagon's most complex problems, the secretary said.

"I brought its leader, Chris Lynch, out here with me. Before Chris came to help us, he was a serial entrepreneur here in the tech world—also worked at Microsoft," Carter noted.

Lynch has recruited coders from private-sector employers such as Google, Palantir, and Shopify to work for a time at DoD, the secretary added.

"We want people like Chris to help keep us strong, creative, and forward-thinking," Carter said, "and hopefully that infusion of innovative, entrepreneurial spirit will rub off on us, and help sustain and strengthen the bridges we're building with the tech community for many years to come."

Pentagon Technology Official Aims to Hasten Innovation Processes

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (MARCH 2, 2016)
Amaani Lyle

WASHINGTON—As cyber and data security remain among the Pentagon's top priorities, the undersecretary of defense for acquisition, technology and logistics underscored the importance of distribution, investment, and private industry collaboration at the D3 Innovation Summit here today.

At the half-day interagency event hosted by the State Department, Frank Kendall noted the speed of innovation, research and development in industry, and outlined DoD's intent to tap into that expedience to more effectively steep U.S. missions in the cyber culture.

"A lot of resources are being invested in new technology outside of security and outside the Department of the Defense; applying those applications and making use of the Internet are among the most important tools," he said.

Infusion of Nontraditional Ideas and Talent

Kendall described the emergence of DIUx, or Defense Innovation Unit Experimental, which primes the DoD to better leverage the infusion of nontraditional technical ideas and talent.

DIUx, Kendall explained, not only aims to create a hub for enhanced communication with, knowledge of, and access to innovating, high-tech start-up companies and entrepreneurs, and leading edge technologies, but also will ultimately whittle long cycles of research and development time for programs such as major weapons systems.

"We're trying to accelerate that process," Kendall said, "because our opponents around the world do have access to those commercial technologies immediately, as soon as they're available in many cases."

Of modern adversaries, Kendall said DoD's assessment of its arrows in the quiver revealed an overarching issue.

"Cyber is a ubiquitous problem … brought about by the fact that we're all connected to it—we don't know how vulnerable we are," he acknowledged. "We've made great strides at the Department of Defense to protect ourselves, … but again, there are a lot of unknowns."

The undersecretary also reported that while cyber is a rapidly changing field available to the masses, harnessing its power requires more than mere access. "Cyber is at the point where … a great many people can learn the technology and use it," he said.

Kendall noted, however, that a deeper level of innovation requires specialized knowledge to build the tools to maintain an advantage over opponents. "Once those tools become available," he said, "there will be a surge of innovation of a different type."

Tough Budget Climate

Foreign policy and mission requirements drive DoD's technology endeavors, but often those strides are stymied not by a lack of innovation, but by a lack of resources, Kendall said. And as tensions persist with North Korea and Iran amid limited fiscal resources, Kendall added, the budget solution is to keep cyber and its security prominent in future fiscal proposals.

According to the State Department website, the summit showcased revolutionary technologies developed by interagency teams across the hosting agency, DoD, and the U.S. Agency for International Development (USAID).

The summit also featured the D3 Pitch Challenge, an interagency call for submissions that demonstrate the United States' use of technologies to advance its defense, diplomacy, and development goals.

Of 500 employee submissions across the State Department, DoD, and USAID, six finalist teams presented their proposals before a senior government panel, featuring Air Force Gen. Paul Selva, vice chairman of the Joint Chiefs of Staff, and other officials.

Carter Reviews New Technologies From DoD's Silicon Valley Unit

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (FEB. 11, 2016)
Cheryl Pellerin

WASHINGTON—Five tech organizations pitched their technologies to Defense Secretary Ash Carter this week during a technology showcase hosted by DoD's six-month-old forward operating unit, the Defense Innovation Unit Experimental (DIUx) in Silicon Valley.

So far, the unit has identified 22 pilot projects with tech companies and start-ups that have never before worked with the Pentagon. Five projects are being executed, and 17 others are in various acquisition phases, DIUx officials said in a statement.

Carter visited DIUx as part of a trip to Silicon Valley—his third as defense secretary—and to Seattle to discuss technology and cybersecurity initiatives with officials at some of the region's top tech companies.

The technologies range from cyber and intelligence analysis to drones and new ways to bring DoD and Silicon Valley together, DIUx Director George Duchak said.

Technology Outpost

In San Francisco this week, Carter spoke with Ted Schlein, a general partner at Menlo Park venture capital firm Kleiner Perkins Caufield & Byers, which focuses on early stage tech companies in enterprise software and infrastructure markets.

"I would like our people to learn more about what's out here," Carter said. "That's one of the reasons why I have this Defense Innovation Unit Experimental. By the way, it's called experimental because we're still experimenting with it, and it's going to change, and we're going to keep innovating with it."

DIUx can help technology entrepreneurs "understand places in the Department of Defense where they can secure funding for ideas that they think are relevant to defense," he said, "and it's a place where our people can come and connect with all of you."

Metrics of Success

The metrics of success for the unit include "projects that we use, money that we spend," Carter added. "That means people. So down the road … if there are a couple of 10s, a couple of 100s of people who have come into the Department of Defense and made a big difference, well, … that would be a measure."

Carter officially opened DIUx in August in the heart of Silicon Valley, and the unit has since hosted individual meetings with more than 500 start-ups, entrepreneurs, executives and corporations, and hosted several signature events, Duchak said. DIUx also has familiarized several DoD leaders with opportunities to work more closely with Silicon Valley innovators and entrepreneurs.

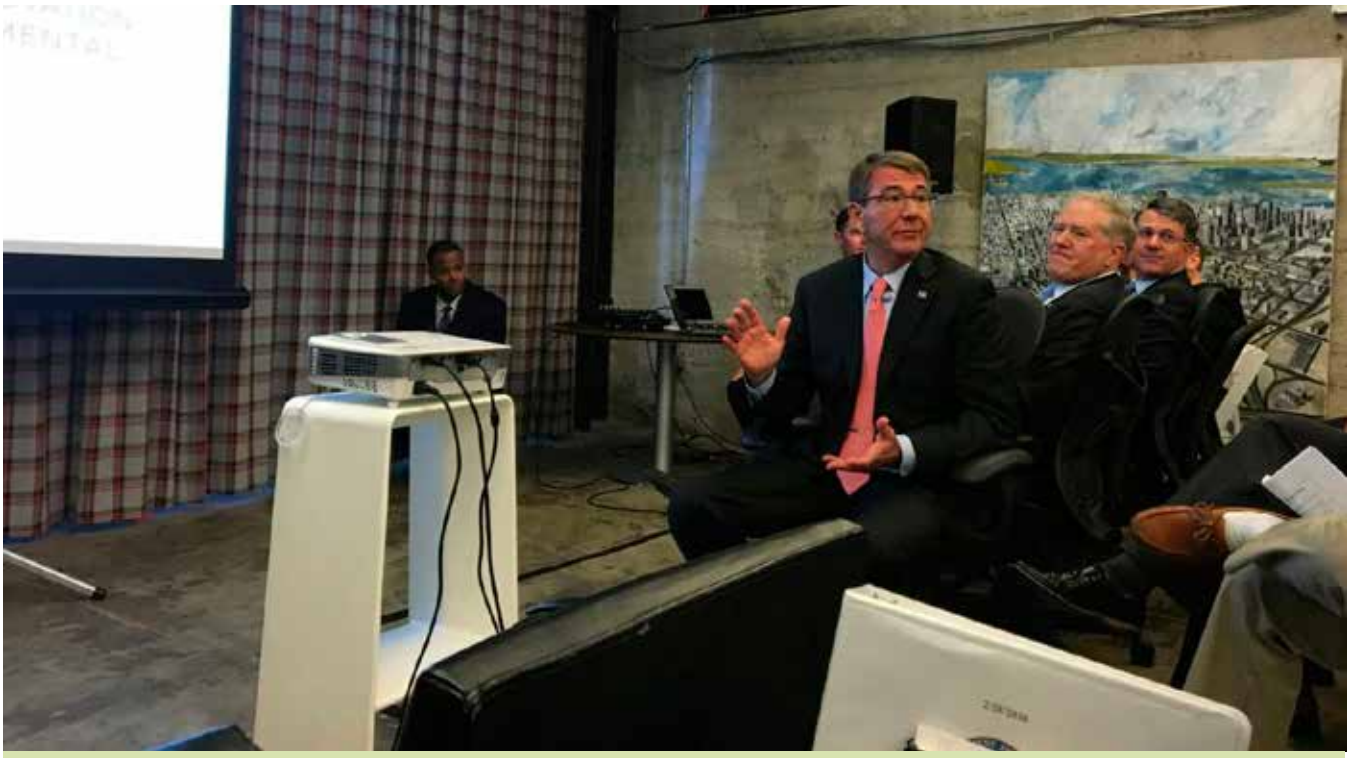
"Just as we've worked hard to introduce entrepreneurs in the Silicon Valley to DoD and opportunities to work more closely together, we've worked equally hard to contextualize what we've learned here for the Pentagon's senior leaders," the DIUx director said.

Funding Pilot Projects

Because DIUx has hosted many visits by Pentagon senior leaders, the unit will have access to science and technology, and research development, science, and technology funding to execute pilot projects with Silicon Valley vendors, the director said.

Current DIUx projects will support offices across DoD, including the Air Force Space and Missile Systems Center, U.S. Army Medical Command, Joint Improvised-Threat Defeat Agency, U.S. Army Intelligence and Security Command, U.S. Cyber Command, U.S. Special Operations Command, Navy 10th Fleet, and others, according to the DIUx statement.

Feature areas for the technology showcase included the following, the statement said:
— Dynamic network mapping;
— End-point protection through micro-virtualization;
— Wind- and solar-powered unmanned maritime vehicles;
— Automated textual analysis and content curation;



A representative from venture-capital-backed startup Bromium gives Defense Secretary Ash Carter and other DoD leaders a technology overview during their visit to Silicon Valley, March 1, 2016. The company, based in Cupertino, Calif., works with virtualization technology, focusing on virtual hardware to eliminate everyday computer threats such as viruses, malware, and adware.
DoD photo

— Lean start-up methodology applied to DoD problems; and
— Dynamically formed aerial and terrestrial mesh networks.

Duchak said DIUx outreach in Silicon Valley is part of an important effort to maintain and increase the U.S. military's competitive advantage.

Robots: Eliminating the First Contact with an Enemy Force

ARMY NEWS SERVICE (MARCH 7, 2016)
David Vergun

SPRINGFIELD, Va.—"We should be thinking about having a robotic vanguard, particularly for maneuver formations," said Dr. Bob Sadowski. "There's no reason why the first contact with an enemy force should be with a man-platform, because it means that platform is at the greatest risk."

Sadowski, the Army's chief roboticist at U.S. Army Tank Automotive Research Development and Engineering Center, or TARDEC, in Warren, Michigan, spoke at a robotics conference here, March 2.

A robot doesn't feel pain and suffering if it gets blown up, he continued. "We want it to be the bullet catcher who takes those rounds."

Besides taking the hit, robots could pinpoint and uncover the direction from which the enemy is firing, he added.

Realizing that the enemy is also developing these systems, "if we don't play in this space, we're not even going to understand what the enemy is doing," Sadowski point out.

Where We're At

Over the last 10 years, the Army has focused on logistical challenges in Iraq and Afghanistan, Sadowski said. A lot of soldiers were lost in convoys that encountered improvised explosive devices and the funding and research went into stopping that.

The Army's demonstration of driverless vehicles took place in May 2014 at the Department of Energy's Savannah River Site in South Carolina, where a convoy consisting of seven different tactical vehicles drove completely unmanned at speeds exceeding 40 mph.

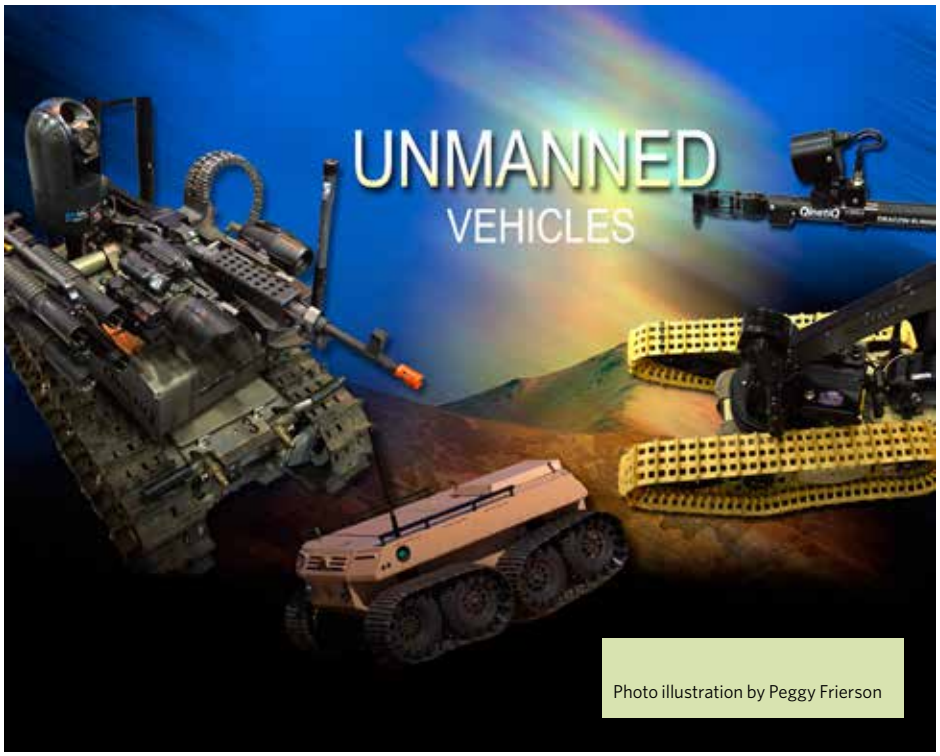


Photo illustration by Peggy Frierson

Once that technology matures and is fielded, the problem is that "if you replace 16 drivers with 16 autonomous vehicles, you've just lost 16 M-16s that the drivers would be carrying to protect the convoy," Sadowski said, "So you'd need to consider arming the autonomous vehicles, with a soldier being the remote triggerman."

Possibly by the end of this year, that experiment at Savannah River will morph into an extended warfighter experiment, or an Army warfighter assessment at Fort Bliss, Texas, he added.

Where We're Going

Today, the effort is still in logistics, but current thinking and doctrine is that robots should be more than logistics; they should be in the fight as well, he said.

The Marines tried this with a robot in Afghanistan, a mule-like device that followed a patrol dismounted, he said. It was rated for 1,000 pounds, but the Marines loaded it up with 2,000. Then they complained it was too slow. So in the future, Sadowski said perhaps robots need to be able to talk back and say, "Sir, I can't carry that."

Currently, testing of vehicles is being done on-road, but off-road is where soldiers fight, he said.

Future robotic development may go to warp speed by using modeling and simulation, saving time and money by plugging scenarios into computers and testing vehicles in dirt, mud, snow, sand, rain, and so on, he said.

To get a peek at the future, look at what's being done already, he said. The Army teamed with Sikorsky and Lockheed Martin to rig a UH-60D helicopter to fly autonomously carrying a robot as its payload. It flew without the aid of a pilot to its destination, dropped off the robot, and flew back.

Had it had problems along the way, say with its engine, a sensor was programmed to look for possible landing sites along the way. As well, the robot payload, which was slingloaded, was balanced by the computer, which gave it even more stability in-flight than a pilot could have done, he said.

Robots will someday interact with other robots like that.

In Australia, an experiment will take place where an operator in the U.S. will remotely guide a robot through the outback with just a second of latency from control to action using satellite technology, he said. It will also be red-teamed, he added, meaning that operators will try to hack into it to take control away from the "friendly" operator.

So the way ahead is like that, with industry partners, academia, and multinational partners. The real payoff is when industry is working on a project that the Army can simply tweak a bit for its own usage, Sadowski said.

Where We've Been

Robotics isn't new, said Sadowski, who has a doctorate in electrical engineering and is a retired soldier himself—a grad from the U.S. Military Academy at West Point, New York. He's also had some 40 months of operational experience in robotics in Iraq and Afghanistan.

For example in the 1950s, the Army developed a robot called Little David, which was driven by remote control. It had a TV camera on it, a machine gun, and even a flame thrower.

Other nations, including the Soviets, had similar systems.

The problem then was taking it off road, especially in tough terrain like Korea and Vietnam. So that's the problem that the Army's looking to solve currently. It will eventually get solved, but it will take some time, Sadowski said.

An early example of using unmanned aerial vehicles was demonstrated by the Japanese during World War II, Sadowski continued. They tied incendiary bombs to balloons and fire-bombed the U.S. Northwest. The farthest a balloon got was Michigan, 10 miles from TARDEC.

"We should be thinking about having a robotic vanguard, particularly for maneuver formations," said Dr. Bob Sadowski. "There's no reason why the first contact with an enemy force should be with a man-platform, because it means that platform is at the greatest risk."

DTRA Program Helps Nations Tackle Biological Threats

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (MARCH 10, 2016)
Cheryl Pellerin

WASHINGTON—As part of the effort to upgrade global biosurveillance capabilities in the wake of recent pandemics, a mainly nuclear nonproliferation program created in the 1990s has evolved to address biological threats around the world.

The precursor to the Defense Threat Reduction Agency's (DTRA) Cooperative Biological Engagement Program, or CBEP, began in November 1991 after the fall of the Soviet Union as a U.S. threat reduction and nonproliferation effort.

The Nunn-Lugar Cooperative Threat Reduction Program initially sought to protect dissolving Soviet countries' nuclear infrastructure from rogue nations and terrorist groups, according to a 2014 Congressional Research Service report.

By 1996, Congress had expanded the program to include protection from chemical, biological, and radiological materials and weapons, and later to include broadening the program to countries beyond the original 15 that emerged from the Soviet Union's dissolution.

Today, 20 years later, a DTRA fact sheet says CBEP is engaged with nearly 30 countries in Africa, Europe, the Middle East and South Asia, and Southeast Asia.

Helping Partner Countries

"Over the years the program morphed into helping those partners safeguard and secure any biological material they may have for public health purposes [and] to give them the capability to detect, diagnose, and report incidents focusing on weapons of mass destruction, related bio threats, and bio material," CBEP division chief Dr. Lance Brooks told DoD News during a recent interview.

The program also works to make sure partner countries can detect intentional and accidental biological releases and natural outbreaks that can become pandemics threatening U.S. national security, he added.

Brooks said CBEP also helps countries with disease reporting required by a 2005 revision of the International Health Regulations, which is implemented and coordinated by the World Health Organization.

The IHR represents an agreement among 196 countries to build capacities to detect, assess, and report significant public health events. The regulations include specific measures that countries should take before and during such events at ports, airports, and ground crossings to limit the spread of health risks.

Bad Guys and Biothreats

Brooks said that a 2009 memorandum from the office of the defense secretary to then-Assistant Secretary Of Defense For Nuclear, Chemical, and Biological Defense Programs Andrew Weber, incorporated infectious diseases from the departments of Agriculture, and Health and Human Services select agents and toxins list into the Cooperative Threat Reduction mission.

The same year, CBEP moved out of the former Soviet Union, eventually moving into Africa to address the nexus of terrorist groups and emerging infectious disease increasing on the continent, Brooks said.

"Anywhere you have bad guys and biological material that could be used as a weapon, that's essentially where we have determination to go," he added.

When CBEP works with a country, "we make sure their facilities are secure and they work safely with materials so they don't have an accidental release, and securely so terrorists can't get their hands on materials," Brooks explained.

"We also help them assess the biological collections in country and help them eliminate any unnecessary stockpile or consolidate it into more secure facilities. Then we work

closely with them to build their disease detection network and integrate that into the public health system," he said.

Sustainable Biosurveillance
CBEP's partners include WHO, the U.S. Centers for Disease Control and Prevention, the U.S. Agency for International Development, and other international organizations to help countries develop their capacities to detect bio threat materials.

For the public health community, "we want them to be able to detect diseases beyond everyday acute diseases like cholera, tuberculosis, and others," Brooks said, "but it has to be integrated into the everyday job and function they're doing; otherwise, they can't sustain it."

CBEP also tries to help build capability beyond facilities and laboratory equipment, he added.

"These countries have to have trained epidemiologists to analyze the information and provide it to the countries' decision makers, who must appropriately respond," Brooks said.

Global Coordination
To coordinate CBEP efforts, DTRA maintains defense threat reduction regional offices around the globe, he said, and the CBEP program works extensively with outside experts.

"You have to have people out in the field working with our partner countries," Brooks said, noting that CBEP also coordinates with an international network of U.S. military laboratories called the Global Emerging Infections Surveillance and Response System, to avoid duplicate efforts.

"Some countries we work with use paper and faxes to send disease information, slowing the notification processes to weeks or months, making it impossible to gather real-time data," he said.

"When we assist a country, we try to get them to do electronic reporting," Brooks added, "so that at least within the country data will be available more quickly for a coordinated response to mitigate a terrorist attack or prevent a potential pandemic outbreak."

Transportation Command Chief Expresses Concern About Trends

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (MARCH 15, 2016)
Jim Garamone

WASHINGTON—U.S. Transportation Command is serving on all seven continents and can respond when called upon, Transcom's commander told Congress today, but he noted some trends he said are causing him concern.

Air Force Gen. Darren W. McDew told the House Armed Services Committee's readiness subcommittee that the pace of today's operations requires the full effort of the nation's nonmobilized air refueling and airlift fleets.

"Should the need arise to respond elsewhere in the world, the mobility resources required could exceed existing capacity," the general said.

Cyber Threats
McDew said he also is concerned about the command's ability to operate in the cyber realm. The cyber domain is an increasingly contested area, he said, and the command relies on commercial providers for about 90 percent of its traffic flow.

"Finally, we must remain vigilant and meet the long-term recapitalization needs of tomorrow," he said. "Highest among these priorities are the development of a viable, strategic sealift recapitalization plan and the on-time delivery of the KC-46 Alpha [aerial refueler]."

Transcom must address all these concerns at once, the general said, and the command must meet today's missions while ensuring the capabilities are present for the future.

The cyber threat is evolving, he said. "All of us probably agree that we couldn't foretell where we would be today with a cyber threat versus where we were just 10 years ago," McDew said. "And I'm concerned—as are all of us—where we'll be 10 years from now."

Defending Networks
The command does a good job of defending its own networks, McDew said, but some of its reliance on commercial unclassified networks may be a problem, because these networks are under attack every day. "So you might not necessarily have to attack my strong position inside U.S. Transcom, but go after someone who provides us a service," he explained.

The general said he would like some answers to some pertinent questions. "I'm concerned about some definitions that we need to get after," he said, "and that is when I defend my network. How far out can I defend? What constitutes an attack on a commercial provider? What do they have to report as an attack, because the definition may be not as clear with every single person?"

The command works closely with U.S. Cyber Command, and leaders there understand the concern, McDew said.

Ships are still a mainstay to power projection, the general said. "I can deliver an immediate force anywhere on the planet tonight," he said. "But to deliver a decisive force, it takes a fully fledged, competent, maritime fleet."

Ships, Mariners

The Transcom commander said he is concerned with both the number of ships and the number of civilian mariners. "We only have 78 in the entire international market for the United States—a maritime nation. That's, I believe, a challenge," the general said. "We ought to have a dialogue about how important is an international fleet to the United States of America. I believe it's vital to moving military goods and hardware."

Transportation Command is working closely with the Navy Department to figure how to recapitalize the merchant fleet and how long it will take, McDew said.

The United States needs more than 11,000 mariners in the fleet, according to the U.S. Maritime Administration. "Without mariners, we don't have a capability, and I believe that U.S.-credentialed mariners [are] important too," he said. "I've been visiting some of the maritime colleges to ensure that those young men and women understand how much we need them, how much we value their credentials they come out of college with, and we need them to go to sea. And we need them to stay with us."

Fiscal Uncertainty

Fiscal uncertainty also plays a large role in any decision McDew must make. "The threat of sequestration directly threatens the Services, which directly threatens … every single combatant command, because we are organized, trained, and equipped by the Services," he said. "We have great partnership with the Services. But their ability to modernize and project that modernization forward and plan forward has been challenged by the up-and-down of the fiscal environment."

Going forward, a stable predictable budget is crucial, the general told the subcommittee.

Rotorcraft Modernization Efforts Back on Track, Officials Tell Congress

DEPARTMENT OF DEFENSE NEWS, DEFENSE MEDIA ACTIVITY (MARCH 17, 201)
Jim Garamone

WASHINGTON—Rotorcraft modernization, severely affected by budget cuts, is just now getting back on track, Army and Air Force officials told a House panel yesterday.

Army Lt. Gen. Michael E. Williamson, the military deputy to the assistant secretary of the Army for acquisition, logistics and technology, told the House Armed Services Committee's subcommittee on tactical air and land forces that a high level of operations, combined with fiscal challenges, contributed to a substantial reduction in Army aviation funding. Funding for Army aviation programs dropped $2 billion from fiscal year 2016 to fiscal year 2017, the general said. The Service also took a further $531 million reduction as a result of the fiscal 2015 Bipartisan Budget Act.

"The immediate result is the procurement of fewer Black Hawks, Apaches, and Chinooks," Williamson said.

Flying Modernized Aircraft

However, he said, the Army studied the situation and proposed the Aviation Restructuring Initiative. The Service was able to push savings into the field and fly its most modernized aircraft "while developing and fielding the right technologies to improve mobility, lethality, survivability, and mission command," Williamson said.

The Army continues to study the report of the National Commission on the Future of the Army for its impact on modernization and procurement, the general said, and is moving forward to address known capability gaps in Army aviation, but at a much slower pace, Williamson said. The fiscal year 2017 budget request includes several critical efforts for next-generation rotary wing capabilities, he said, which include the advanced threat reduction system, degraded visual environment mitigation, and joint multirole technology demonstrator.

In the fixed-wing world, a replacement for C-12 and C-26 aircraft is projected to be selected and begin fielding in fiscal year 2018, he said.

"In the field of modernization, we are focused on improving the Apache, Chinook, and Black Hawk helicopter fleets, as well as saving money for the American taxpayer by pursuing a multiyear contract in fiscal 2017 for the Apache," Williamson said. "We will award the ninth multiyear contract

for [the] Black Hawk and the second for [the] Chinook in fiscal 2017."

The Army also is investing in an improved turbine engine for the Apache and Black Hawk helicopters, he said. This will meet worldwide demand for operations in high-altitude areas and in hot conditions, he added. The Army is also refurbishing and modernizing its remotely piloted vehicle fleet, Williamson said.

Air Force Lt. Gen. Arnold W. Bunch Jr., the military deputy to the assistant secretary of the Air Force for acquisition, stressed the Services' collaboration on science and technology in rotorcraft modernization. "They are great teammates, and we must continue that work to be successful," he said.

Balancing Readiness, Modernization

Helicopters are critical to the Air Force, Bunch said. "Our rotary-wing fleet has been and continues to be heavily engaged," he said. "They have conducted operations across the spectrum, and we are committed to modernizing and recapitalizing our fleet as we balance readiness and modernization in this budget."

The Budget Control Act of 2011 limited resources to the service rotorcraft program, Bunch said. "While we're grateful for the additional resources the Bipartisan Budget Act provides, we need your support in the form of stable and predictable budgets for the future," he said.

In his written statement, Bunch said the Air Force is looking to maintain its current search-and-rescue capability of HH-60G helicopters until the new combat rescue helicopter enters the force.

The Air Force also is modernizing its fleet of venerable UH-1N "Huey" helicopters, he said.

Bunch said the Air Force employs V-22 Osprey tilt-rotor aircraft for special operations missions, noting that the Service is requesting funds to maintain its current fleet of 46 Ospreys and to add five more.

Army Science Board looks at Lethality, Protection Research

U.S. ARMY RESEARCH LABORATORY PUBLIC AFFAIRS (MARCH 21, 2016)

ABERDEEN PROVING GROUND, Md.—Members of the Army Science Board visited the U.S. Army Research Laboratory (ARL) March 4.

The Army Science Board, or ASB, advises senior service leaders on science and technological matters of concern to the Army. Dr. Bill Snowden led the group on its quest to gather information for a 2017 armor and anti-armor technologies report.

"A significant portion of the visit centered on ARL's armor protection program," said Michael Keele, ARL vehicle protection engineer. "Our discussions focused on ARL's adaptive armor program as well as interactions between high energy lasers and modern armor technologies."

Adaptive and cooperative protection fuses battlefield information to predict an evolving threat with the ability to sense and respond uniquely to threats as they are deployed.

Keele said they made sure the panel was aware of the Army's state-of-the-art protection technologies.

"The visitors were very receptive to the discussion and requested follow-up documentation to help them develop a summary on the state of the Army's overarching approach to protection," he said.

Snowden is a materials scientist and defense technologist. His doctorate is in Materials Science and Engineering from the University of California, Berkeley. As an ASB member, he has been involved in a number of studies on combat vehicle survivability.

He also served at the Defense Advanced Research Projects Agency, or DARPA, as a program manager for the agency's armor and anti-armor research and technology program.

Engineers at ARL's Weapons and Material Research Directorate are part of the laboratory's Science for Lethality and Protection Campaign. Army researchers are focused on gaining a fundamental understanding of armor, underbody, scalable effects, directed energy, and human injury mechanisms.

The U.S. Army Research Laboratory is part of the U.S. Army Research, Development and Engineering Command (RDECOM), which has the mission to ensure decisive overmatch for unified land operations to empower the Army, the joint warfighter, and our nation. RDECOM is a major subordinate command of the U.S. Army Materiel Command.

Department of Defense Selected Acquisition Reports (SARs)

DEPARTMENT OF DEFENSE NEWS, PRESS OPERATIONS (MARCH 24, 2016)

(As of December 31, 2015)

The Department of Defense (DoD) has released details on major defense acquisition program cost, schedule, and performance changes since the December 2014 reporting period. This information is based on the Selected Acquisition Reports (SARs) submitted to the Congress for the December 2015 reporting period.

SARs summarize the latest estimates of cost, schedule, and performance status. These reports are prepared annually in conjunction with submission of the president's budget. Subsequent quarterly exception reports are required only for those programs experiencing unit cost increases of at least 15 percent or schedule delays of at least six months. Quarterly SARs are also submitted for initial reports, final reports, and for programs that are rebaselined at major milestone decisions.

The total program cost estimates provided in the SARs include research and development, procurement, military construction, and acquisition-related operations and maintenance. Total program costs reflect actual costs to date as well as future anticipated costs. All estimates are shown in fully inflated then-year dollars.

The current estimate of program acquisition costs for programs covered by SARs for the prior reporting period (December 2014) was $1,622,053.2 million. Final reports submitted for the annual December 2014 and for the June 2015 and September 2015 quarterly exception reporting periods were subtracted. Initial reports for the annual December 2014 and for the June 2015 and September 2015 quarterly exception reporting periods were added. Finally, the net cost changes for the June 2015 and September 2015 quarterly exception reporting periods were incorporated.

Review the SAR Summary Tables in their entirety at http://www.defense.gov/Portals/1/Documents/pubs/SAR_Summary_Tables_2015.pdf.