

SENATE COMMITTEE ON ARMED SERVICES

STATEMENT OF
JOHN E. HYTEN
COMMANDER
UNITED STATES STRATEGIC COMMAND
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INTRODUCTION

USSTRATCOM is a global warfighting command. This is my third year testifying in front of this committee. My command priorities have not changed. They remain: (1) above all else, provide strategic deterrence for the Nation and assurance of the same to our allies and partners, (2) if deterrence fails, be prepared to deliver a decisive response, and (3) do this with a combat-ready force. The 162,000 men and women who make up USSTRATCOM are resilient, equipped, and ready thanks to your continued support. Budget stability over the past year was extremely important and had a positive impact on both our modernization efforts and our overall readiness.

As part of the Joint Force, USSTRATCOM is responsible for Strategic Deterrence, Nuclear Operations, Global Strike, Space Operations, Joint Electromagnetic Spectrum Operations, Missile Defense, and Analysis & Targeting. To execute our assigned missions, the Soldiers, Sailors, Airmen, Marines, and civilians of the command operate globally across the land, sea, air, and space. Our forces and the strategic deterrence they provide underpin and enable all Joint Force operations and are the ultimate guarantors of national and allied security.

The foundation that enables our strategic deterrence is the triad: nuclear-armed Intercontinental Ballistic Missiles (ICBMs), Submarines, and Bombers. A powerful, ready triad remains the most effective way to deter adversaries from conducting strategic attacks against the United States and allies. Its credibility backstops all U.S. military operations and diplomacy around the globe and ensures that tensions – regardless of where or how they arise – do not escalate into large-scale war.

However, as all the elements of the triad age beyond their planned service life, we must continue to execute our planned modernization strategy to maintain an effective deterrent. We require a robust and ready nuclear arsenal for the foreseeable future. This will remain the case until the myriad of legacy and emerging nuclear threats are reduced or eliminated. Unfortunately, the opposite is occurring.

Deterrence is created by much more than the 1,550 New START treaty-accountable deployed nuclear weapons and 700 deployed strategic delivery platforms. Today, our mission to deter major power conflict dictates we field ready, capable, and lethal forces, tailored to adaptive adversaries. Continued success means integrating the full range of missions in all domains and without geographic boundaries. We are increasingly integrating our planning and Tier 1 exercises to remove seams between global and geographic combatant commands. We are pursuing approaches to enhance real world planning and execution of globally integrated fires to best deliver the most effective capabilities and effects when and where needed.

The United States must never put our ability to deter in jeopardy. Our missions, capabilities, and forces must continue to be an integral part of our overarching national security posture. Therefore, to continue to provide the security our Nation deserves, we must clearly identify the threats we face, develop

strategies to deter those threats, and ensure we have the required capabilities for decisive response if deterrence fails. Only with continued Congressional support, can this remain the case.

GLOBAL SECURITY ENVIRONMENT

The National Defense Strategy describes the increasingly complex global security environment in which we live. We characterize today's environment by the re-emergence of long-term, strategic competition between nations and overt challenges to the free and open international order. Although an era of great power competition is again a reality, that does not mean conflict is inevitable. It means we must continue investing in strength to preserve the peace.

It is increasingly apparent that China and Russia want to shape a world consistent with their authoritarian models – gaining veto power over global economic, diplomatic, and security decisions – seeking dominance within their perceived regional spheres of influence, and expanding their global reach.

For over two decades, China and Russia have studied the American way of warfare; observing first-hand how we train and fight. They now understand the advantages we gain from integrating capabilities across all domains to accomplish strategic objectives. To counter our dominance, China and Russia are actively seeking to exploit perceived vulnerabilities and are directly challenging us in areas of long-held strength. Their development of asymmetric capabilities across all-domains is not meant to challenge single aspects of our deterrence strategy; rather, their advancements in technology, strategy, tactics, and doctrine aim to invalidate our entire deterrence strategy.

CHINA

China continues to challenge the existing rules-based international order. It is advancing a comprehensive modernization program aimed at making the People's Liberation Army a world-class military. This program includes the continued development and deployment of a nuclear triad, combined with anti-access/area denial (A2/AD) and power projection operations. They are also pursuing advancements in offensive hypersonic strike weapons, advanced robotics, quantum computing, and artificial intelligence through a combination of research and development, forced transfer of intellectual property, and outright cyber theft.

Additionally, China's maturing military space capabilities in intelligence, surveillance, and reconnaissance, satellite communications, satellite navigation, meteorology, and robotic space exploration present growing challenges in space. With their focus on counter-space capabilities, China is pursuing a strategy of denying the United States the advantage of space-based systems during crises and conflicts.

Once locked away in intelligence channels, news outlets are beginning to note specific threats to our space systems. January marked 12 years since China publicly tested its direct-ascent system, in which it destroyed one of its own satellites and created thousands of pieces of debris. This 2007 test demonstrated to the world that China is capable of destroying any satellite in low earth orbit, including many of our intelligence and communications spacecraft. Today, China has an operational ground-based anti-satellite missile intended to target low-earth orbit satellites and are pursuing numerous other capabilities. These developments, coupled with China's lack of transparency on nuclear policies, force disposition, and weapons and their growing assertiveness to challenge the existing free and open international order undermines regional and global stability. Further, these actions seek to erode the U.S. standing in Asia.

RUSSIA

Russia continues to conduct malign activities that negatively impact U.S. interests. Their invasion and attempted annexation of the Crimean Peninsula, destabilizing eastern Ukraine, intervening on behalf of Syrian President Bashar al-Assad, and shaping the information environment to suit Russian interests, pose a major challenge to the United States and NATO. Russia's military doctrine emphasizes the potential coercive and military uses of nuclear weapons. It mistakenly assesses that the threat of nuclear escalation or actual first use of nuclear weapons would serve to "de-escalate" a conflict on terms favorable to Russia. These mistaken perceptions increase the prospect for dangerous miscalculation and escalation.

As far back as 2006, Russia committed to modernizing and adding new military capabilities to its nuclear forces and upgrading its strategic nuclear triad. Today, Russia has completed roughly 80 percent of their modernization goals. As part of this program, Russia is upgrading to modern road-mobile and silo-based ICBMs, increasing ballistic missile submarine reliability and stealth, fielding new Submarine Launched Ballistic Missiles (SLBMs), Submarine Launched Cruise Missiles (SLCMs), and modernizing its fleet of long-range strategic bombers, to carry nuclear and conventionally-armed air-launched cruise missiles. Russia is also developing and intends to deploy novel strategic nuclear weapons, like its nuclear-armed, nuclear-powered underwater unmanned vehicle and intercontinental-range cruise missile, which Russia seeks to keep outside of existing arms control agreements.

Russia is also pursuing nuclear-armed hypersonic missiles and nuclear-capable cruise missiles, which when coupled with their newest intercontinental range ballistic missiles, improves upon its capability to attack anywhere on the globe with little or no notice. Additionally, their production of a new fifth generation bomber expected within the decade will enhance their ability for long-range deployment.

Russia's material breach of the Intermediate-range Nuclear Forces Treaty also remains a significant concern, as demonstrated by their deployment of a treaty-violating system, the SSC-8 ground-

launched cruise missile, multiple battalions of which have been fielded as of late 2018, and illustrates Russia's broader pattern of malign behavior and willingness to disregard negotiated agreements when they believe it is in their interest. Finally, Russia has an active stockpile up to 2,000 Non-Strategic Nuclear Weapons (NSNWs), which are not accountable under the New START Treaty. These include air-to-surface missiles, short-range ballistic missiles, gravity bombs, and depth charges for medium-range bombers, tactical bombers, and naval aviation, as well as anti-ship, anti-submarine, and anti-aircraft missiles and torpedoes for surface ships and submarines, and Moscow's antiballistic missile system.

Russia's diverse and flexible NSNW capabilities facilitate a doctrine that envisions the potential coercive use of nuclear weapons. Combined with its large nuclear weapons infrastructure and ready production base, this underscores Moscow's commitment to having nuclear weapon underpin its security and commitment to maintaining its nuclear forces for the indefinite future. Their doctrine of coercive use further enhances their ability to challenge the United States and NATO across the full spectrum of political, diplomatic, military, and information warfare.

NORTH KOREA AND IRAN

North Korea and Iran remain threats but not to the same degree as China and Russia. Both North Korea and Iran retain large arsenals of short- and medium-range ballistic missiles and are threats to regional stability. North Korea has tested ICBM-class missiles designed to range the United States. However, the Department of Defense is working actively to reduce military tensions and remains in full support of our diplomats as they work to achieve the final, fully verified denuclearization of the DPRK. Iran remains the world's leading sponsor of terror and continues its malign influence and destabilizing activities across the region. None of these activities are helpful or supportive of peace and stability, and all introduce greater risk to an already complex and volatile environment. In both instances, we remain vigilant to the threats they pose to the United States, our allies and partners, and support the on-going international and whole-of-government approaches to reduce these threats peacefully.

STRATEGIC DETERRENCE

Strategic deterrence has underwritten our Nation's security and preserved our way of life since the end of World War II. While the fundamental principles of deterrence remain constant, the 21st Century landscape is profoundly different. We can no longer focus on countering a single adversary with traditional means. Peer adversaries are aggressively pursuing outright theft of intellectual property, demonstrating willingness to corrupt supply chains, and are exploiting rapid advancements in disruptive technologies in destabilizing ways. These actions provide China and Russia, in particular, advanced strategic capabilities to threaten the United States and marginalize our global influence. This requires us to rethink how we continue to deter new types of strategic attacks.

The mission of our Nation's strategic forces of the last 73 years endures: to deter major attacks against the United States and if necessary employ strategic forces to defeat an ever-changing adversary. Effective command and control, that supports global integration, is a necessary and critical element.

The 2018 National Defense Strategy states the Department of Defense (DoD) "will modernize the nuclear triad – including Nuclear Command, Control, and Communications (NC3), and supporting infrastructure." Thanks to Congressional support and timely budgets, we are making solid progress modernizing these weapon systems. However, to fully realize the capabilities of a modernized triad we require an NC3 architecture responsive to evolving threats and able to adapt to technology innovations. Speed is essential. We are beginning to move faster, but we are still not moving fast enough. Our most critical weapon systems must deliver on time or early. The Services are making progress and I appreciate their efforts, but we must continue to strive for more timely, affordable programs. We must recapture the ability of our nation to go fast, faster than all potential adversaries, in order to maintain an effective deterrent.

Going fast means that we return to the dynamic that made us the strongest most technologically advanced military in the world. Over my nearly 38 years of military service I have watched as we collectively developed an increasingly unhealthy expectation of removing all risk from everything we do. Admiral Hyman Rickover, the father of the Nuclear Navy once said, "Success teaches us nothing, only failure teaches." We seem to have forgotten this principle. Although success is the ultimate goal, we must accept some healthy failures along the way. Today, however, we seem to reward and promote people at all levels for never failing, subconsciously creating a collective mindset to maintain the status quo at all costs. The best way to never fail is to never try, or to try only when success is certain – which means we punish those who aggressively take risks. If we continue this trend, we will eventually fall behind our competition. In 1991, the United States had the only superpower-class military, and status quo at that time favored us greatly. We still have an advantage, but that advantage is shrinking. I appear before you today fully confident in our ability to preserve the peace and dominate any conflict. But without change – unless we recapture the ability to take intelligent risk – a future USSTRATCOM commander, a decade or so from now, may sit before you and not be able to make the same statement. This could put our whole nation at greater risk.

To emphasize that point – today, our forces are still dominant, the finest in the world, yet they are equipped with many of the exact same weapon systems fielded during the Cold War, including the triad and our NC3 capabilities. Moreover, our competitors are moving fast – particularly in the area of their strategic forces. Status quo no longer favors us; however, our underlying personnel, budgeting, and acquisition structures evolved since the end of the Cold War to preserve the status quo. This must change. We must counter this situation with ruthless determination to reward and promote thoughtful risk

management aimed at applying innovative technologies and new business practices. We must improve our ability to protect our nation's commercial sector where innovation thrives. We must move fast in space, in cyber, in all our strategic systems – to once again regain the advantage.

NUCLEAR COMMAND, CONTROL, AND COMMUNICATIONS

Our NC3 system is ready, reliable, and effective at meeting today's strategic deterrence requirements. However, to meet the evolving threat, advances in technology, and to prepare for a modernized triad we must update our NC3 system now. Our current legacy system reflects the needs of the Cold War, focused primarily on Soviet-era ballistic missile and bomber threats. The next generation NC3 architecture must maintain and even improve on the readiness and reliability of today while also dealing with the myriad of new threats from our potential adversaries. As we transition to a modern threat-based NC3 enterprise architecture and address the growing cyber, asymmetric, and kinetic challenges, we must ensure positive command and control of U.S. nuclear forces at all times, even under the enormous stress of a nuclear attack. Getting this right and doing so quickly is one of my top priorities.

The next generation NC3 architecture requires an innovative approach tightly linking mission needs, requirements, acquisition, and funding strategies to deliver capability on operational and threat-relevant timelines. We must transform the enterprise to operate with speed and agility, fully leveraging rapid prototyping and experimentation, to innovate and outpace the threat. We must continually change while maintaining predictability for the user. This is a challenging task and once defined must be consistently resourced.

The 2018 Nuclear Posture Review (NPR) identified a range of initiatives to ensure our NC3 capability remains survivable and effective in crisis. Among these initiatives is reforming NC3 governance due to the broad diffusion of authority and responsibility within the Department. On 03 Oct 2018, the Secretary of Defense designated the Deputy Secretary of Defense and Chairman of the Joint Chiefs of Staff accountable for all NC3 related activities. Under this new governance structure, the Commander of USSTRATCOM is the NC3 Enterprise Lead responsible for NC3 enterprise operations, requirements, and systems engineering and integration, while the Under Secretary of Defense for Acquisition and Sustainment (USD (A&S)) serves as NC3 Capability Portfolio Manager (CPM). We have codified NC3 governance roles and responsibilities, taken concrete steps to sustain the current NC3 architecture with selective modernization, and are moving forward to design and field the next generation NC3. This was a necessary step to place the authorities under one commander, and I am already moving forward in that role.

To execute these new responsibilities, we are well on our way to establishing the NC3 Enterprise Center (NEC) at USSTRATCOM and are on track to achieve initial operational capability this year. The NEC will improve mission effectiveness and efficiency while defining future NC3 capability requirements. The NEC will also establish core NC3 operational concepts as the basis for aligning the right mix of multi-domain capabilities necessary to execute the Nuclear Command and Control mission and achieve strategic deterrence objectives. Essential to this work, is the ability to direct enterprise-level systems engineering and integration activities. Working with the Director, Defense Information Systems Agency (DISA), the Joint Systems Engineering and Integration Office is now aligned to the NEC and receives operational direction and work prioritization from me.

To support the NEC, USD (A&S) as the NC3 CPM will oversee and advise on NC3 enterprise acquisition and resources. The NEC and USD (A&S) team will provide comprehensive enterprise-level understanding of operational risk, margin and investment priorities as we envision, design and field the next generation NC3 in partnership with our service and agency leads.

To ensure we remain aligned, responsive and relevant, the NC3 enterprise must have dedicated operational and intelligence resources to rapidly identify, understand, and anticipate current and future evolving threats to the NC3 enterprise. To satisfy this need and concurrently address Section 1655 of the FY 2018 National Defense Authorization Act (NDAA), PL 115-91, USSTRATCOM, in coordination with the Office of the Director for National Intelligence, is establishing an NC3 Intelligence Fusion Center within the USSTRATCOM Intelligence Directorate. This initiative will facilitate aligning operations with intelligence expertise to enhance future NC3 architecture security.

With the governance structure in place to address future needs, we will concurrently continue sustainment and operation of the existing NC3 enterprise. We have taken significant steps over the past year to improve service, agency, and nuclear command and control operations centers reporting to better understand operational risk and margin. This data will allow us to continue increasing the analytic rigor in our assessments and inform sustainment and modernization investment priorities.

In order to provide the Commander In Chief continuous communications and control of the nuclear forces, we are improving communications capabilities across all domains to ensure connectivity, enhanced conferencing, and decision support tools to the President. In the space domain, we continue to launch Advanced Extremely High Frequency (AEHF) satellites for integration into a combined Milstar/AEHF communications constellation. The AEHF satellites, using the eXtended Data Rate (XDR) waveform, coupled with requisite ground node and airborne platform Family of Advanced Beyond Line-of-Sight terminals (FAB-T) enable collaboration between the President and senior advisors under any circumstance and ensure connectivity with the nuclear forces.

In the air domain, the Air Force and Navy are executing an airborne platform Analysis-of-Alternatives for replacing existing E-4B National Airborne Operations Center, E-6B Airborne Command Post and Take Charge And Move Out (TACAMO), and C-32 Executive Transport fleets. Ongoing communications capability enhancements include Air Force programs to provide a Very Low Frequency (VLF) receiver for the B-2 bomber in 2020 and a replacement VLF receiver and AEHF-capable terminal for the B-52 bomber. These capabilities will provide resilient and robust worldwide connectivity lasting well into the next two decades.

Finally, in the land domain, the Air Force Global Aircrew Strategic Network Terminal program will deploy an AEHF terminal providing Air Force Wing Command Posts, Munitions Support Squadrons, and Mobile Support Teams with survivable ground-based communications to receive Presidential direction for relay to bomber, tanker and reconnaissance forces. This modernization initiative is essential to completing transition from legacy Milstar low data rate networks to AEHF extended data rate networks.

I am confident in the direction the Department has taken and the priority placed on modernization of the NC3 Enterprise as stated in the NPR. As the Enterprise lead, my command will aggressively move forward, ensuring a safe, secure, and reliable architecture is in place for years to come.

THE NUCLEAR TRIAD

Maintaining the planned modernization of our nuclear triad of ICBMs, SSBNs, and bombers with air delivered weapons remains the best approach to deterring potential adversaries and assuring our allies that we are committed to their security. Numerous reviews, including the 2018 NPR, validate the nuclear triad's importance in deterring Russia and China, providing operational flexibility, and dissuading other nations from pursuing their own nuclear weapon programs. With a credible and effective force and a supporting declaratory policy, our strategic competitors would be hard-pressed to believe they could attack the United States or our allies and achieve the benefits they seek.

A modernized triad provides both unique and complementary capabilities to address current threats and future uncertainty. Alert and always ready to respond, the ICBM force ensures no adversary, regardless of size, can be confident in the success of a preemptive attack. Our ICBMs create enormous targeting problems for our adversaries, requiring a massive raid that would be impossible to hide and would guarantee their own demise. With its range, payload, accuracy, and speed the ICBM is critical to our nation's deterrent strategy.

Our strategic bombers provide the President the most visible, flexible, adaptable, and recallable options to provide strategic deterrence. Should an emerging crisis arise, we can rapidly deploy our bombers to clearly communicate our resolve and commitment to our global security partners. With the

ability to provide a conventional or nuclear strike capability, the bomber force plays an indispensable role in our overall strategy.

Nuclear powered submarines with nuclear-armed ballistic missiles patrol the seas and provide a survivable response capable of holding targets at risk within hours. Their assured, survivable second-strike capability means that regardless of any attack, our adversaries will always face the possibility of a devastating response. The most survivable leg of the triad, it is also critical to our nation's strategic deterrent.

We continue to propose prudent investments in delivery system modernization programs across the triad. These modernization efforts improve our readiness, increase safety and security, and enhance our capabilities/credibility against the threats we face now and in the near future. Although some might consider these modernization plans expensive, I believe that America can afford survival. The only way to change our strategic deterrent is to convince our adversaries to reduce the threat. This is not occurring. China and Russia, in particular, are not only modernizing the traditional elements of their own triads, but are also building a myriad of additional nuclear capabilities to threaten the United States. Both nations employ and are modernizing silo-based ballistic missiles, submarines and bombers, and both are deploying large numbers of mobile ICBMs – which the US has chosen not to pursue. China and Russia are pursuing hypersonics as we are, but, in stark contrast, we have no plans to include them in our nuclear force structure. Russia is also building new intermediate range nuclear weapons, new cruise missiles, as well as new nuclear powered cruise missiles and torpedoes all to threaten the United States.

We continue to monitor and evaluate all these new threats. We did so in last year's NPR. In the NPR, we evaluated and discarded a course of action that would match and even exceed the capabilities of these adversaries. Our analysis showed that we could continue to deter any and all of these threats with a modernized triad augmented by a small number of low yield nuclear weapons deployed on our submarines and a measured sea launched cruise missile capability. Modernization of these capabilities is critical to our nation's defense. We don't have to match all the specific capabilities of our adversaries as long as our capabilities are robust enough to deter and if needed respond to any attack; this is why we need a triad augmented by some small numbers of supplemental capabilities. By pursuing these capabilities, we make sure that nuclear-armed adversaries do not falsely conclude there are reasonable benefits and acceptable costs to attacking the United States and our allies. Sustaining and modernizing the triad requires investment, but its contribution to peace and stability far outweigh the projected cost required to maintain a credible nuclear deterrent.

LAND-BASED STRATEGIC DETERRENT

The Minuteman III has served the country for over 45 years. Its high availability rate is testament to its robust design and the diligent efforts of the Airmen who operate and maintain the weapon system. The Air Force is committed, through such efforts as the Programmed Depot Maintenance and Airborne Launch Control System Replacement programs, to sustaining the Minuteman III ICBM through 2030. When the Minuteman III finally retires, it will have exceeded its initial 10-year service life by half a century. While still reliable, missile component and hardware attrition, coupled with the aging of 1960's era infrastructure, drive the requirement for a comprehensive weapon system replacement within the next decade. Further Minuteman III life extension is not cost effective nor will it provide a weapon system capable of adapting to advancing technology and changing adversary threats.

To maintain a viable land-based strategic deterrent capability, the Air Force must begin deploying the replacement Ground Based Strategic Deterrent (GBSD) by the late 2020s. We are working closely with the Air Force to ensure the GBSD is fully integrated into our modernized NC3 system and can adapt to an evolving and increasingly dynamic strategic environment. To ensure this, the Air Force is incorporating modularity and open system standards enabling future technology insertion. Additionally, to deliver GBSD on time and on budget, the Air Force is pursuing mature, low-risk technologies and working with other strategic partners to leverage investments that eliminate delays and reduce cost. When fielded, GBSD will be a capable and cost-effective ICBM able to deter potential adversaries and assure allies of our commitments to their security.

SEA-BASED STRATEGIC DETERRENT

The OHIO-class ballistic missile submarine's stout construction and pioneering maintenance program allowed it to be life extended from 30 to 42 years into the 2040s, making it the longest serving submarine in U.S. history. However, with no margin to extend the OHIO-class further, the COLUMBIA-class SSBN must field on time to avoid a deterrent capability gap in the triad. It is also essential that we maintain our technological advantage in this critical mission, and COLUMBIA will do just that. To this end, the Navy has elevated the COLUMBIA program to its top shipbuilding priority, leveraging other efforts and implementing advanced procurement to reduce risk and ensure it is ready for its first strategic deterrent patrol in 2031. We must continue to support our industrial partners and give appropriate prioritization to funding throughout the life of the program.

To avoid complex concurrent strategic weapon modernization programs, the Navy life extended the Trident II D5 ballistic missile to transition from OHIO to COLUMBIA. The Navy fielded the Trident II D5 over 25 years ago and is executing a life extension that will allow service into the early 2040s. In

the face of continuously evolving threats, we must begin the effort of designing a flexible and adaptable follow-on SLBM that allows rapid and cost effective modifications.

To ensure our nuclear posture is successful in deterring adversaries, the 2018 NPR directed near-term fielding of a small number low-yield ballistic missile (LYBM) warheads and pursuit of a modern nuclear-armed SLCM. These capabilities are necessary to our strategic deterrence mission and will serve to disabuse any adversary of the mistaken perception they can escalate their way to victory.

The LYBM has begun production and will serve to provide a timely counter to Russia's NSNWs, their doctrine of limited first-use in a large-scale conflict on Russian territory, and their perceived advantage in low-level nuclear conflict. The SLCM will help close deterrence gaps and provide a considerable degree of assurance to allies.

AIR-BASED STRATEGIC DETERRENT

The current bomber fleet and its associated weapon systems have already exceeded or are rapidly approaching the end of their intended service life. To preclude a strategic capability gap associated with these essential nuclear platforms, ongoing sustainment and planned modernization efforts must continue.

The B-52 remains the backbone of the strategic bomber force today and well into the future. It is the only platform capable of employing the nuclear AGM-86B Air-Launched Cruise Missile (ALCM) which provides a standoff capability while providing the President the flexibility to recall a strike if necessary. B-52s will remain in service until 2050. Until the B-52 is replaced, the Air Force will continue to upgrade the aircraft to ensure its long-term viability. Modernization of the 1950's-era engines, avionics, and weapons systems is essential for continued airborne strategic deterrence.

The B-2, the Nation's only penetrating bomber is also undergoing several critical modernization programs to maintain its survivability against advanced air defenses. Similar to the B-52, the B-2 recently received weapon systems and communication equipment updates to improve effectiveness and lethality.

The B-21 is the bomber of the future, ensuring we maintain a technical advantage against planned adversary advancements. Armed with both direct attack weapons to hold emerging targets at risk and cruise missiles to deny geographic sanctuaries to any adversary, the B-21 will deliver the right capabilities based upon the tactical situation. Like other modernization programs, it is critical the Air Force deliver the B-21 on time and on budget to assure we can meet deterrence objectives and global security commitments.

Complementing the Nation's strategic bomber force, the Long Range Standoff weapon (LRSO) will replace the aging ALCM and maintain a viable nuclear standoff capability that can hold targets at risk in an evolving threat environment.

Strategic bombers require reliable and robust tanker support to execute their strategic deterrence and nuclear operations missions. While the Air Force is committing significant resources to maintain the aging KC-135 tanker fleet, it is critical we deliver its replacement on time. The Air Force remains confident the KC-46 will deliver the required capabilities to support our strategic forces. It is imperative that KC-135 sustainment and KC-46 deliveries remain top priorities to ensure a credible air-delivered strategic deterrent.

Our NATO partners rely on the credible deterrent of deployed F-15, F-16, and PA-200 Dual Capable Aircraft (DCA) to provide regional assurance against aggression in Europe. The B61 nuclear gravity bombs deployed to NATO are over 30 years old and will be replaced by the life extended B61-12. By the mid-2020s, the F-35 will be available in Europe and capable of delivering the B61-12 into defended areas, maintaining the credibility of our deterrent capability and of the nuclear alliance. The on-time delivery of these capabilities and our continued commitment in support of NATO is a cornerstone of our deterrence and assurance objectives.

NUCLEAR WEAPON STOCKPILE AND SUPPORTING INFRASTRUCTURE

Today, our nuclear weapons are safe, secure, effective, reliable, and able to meet deterrence mission requirements. Much like the modernization efforts of our delivery systems, we must also take a hard look at the components that make up the warheads themselves. Ensuring the viability of the nuclear deterrent requires continued resourcing and sustained effort to address the increasing uncertainty and growing risk in our nuclear stockpile and enterprise.

The majority of weapons in today's stockpile have surpassed their intended design life, thereby accumulating increasing risk. The United States has reduced its stockpile by 25 percent since 2010, while some potential adversaries have increased their numbers of nuclear weapons and significantly modernized their nuclear capabilities. Potential adversaries are elevating strategic uncertainty with new capabilities, escalatory doctrines, and actions threatening our nuclear forces' effectiveness and credibility.

To address these challenges, the Nuclear Weapons Council (NWC) recently updated its long-range strategic plan to align with the National Security Strategy and the National Defense Strategy, and implement actions directed in the 2018 NPR. The strategic plan aligns the Department of Energy's National Nuclear Security Administration (NNSA) nuclear weapons modernization and infrastructure recapitalization activities with DoD nuclear delivery system replacement programs in support of deterrence and military requirements.

The NNSA recently celebrated important stockpile modernization milestones by completing the Navy's W76-1 ballistic warhead life extension program (LEP) and achieving first production of key components in the Air Force's B61-12 gravity weapon nuclear package. The Air Force and NNSA are

progressing with the LRSO missile and its associated W80-4 warhead to deliver required capabilities on schedule.

The next significant stockpile effort involves both Air Force and Navy ballistic missile warheads, the bulk of our deterrent force. While these weapons will not field until the 2030s, development activities need to start in earnest now in order to posture the enterprise for success. Starting now also provides expanded opportunities for the Navy and Air Force to collaborate and leverage investments to their mutual benefit.

None of the required stockpile surveillance, sustainment and modernization efforts will succeed without replacing key facilities and upgrading our aged nuclear infrastructure. Our present complex continues to accumulate serious risk due to atrophy and past lack of timely recapitalization. I visited all the design laboratories and production plants across the complex last year, and in too many cases the enterprise is operating at or near capacity or simply lacks the needed infrastructure. This results in little margin to execute planned work or respond adequately to an emergent technical issue. Options for future systems are constrained by design and production limitations. If not corrected with currently underway or planned investments, the complex's condition will place us at a strategic disadvantage.

The highest NNSA infrastructure priority is re-establishing a plutonium pit production and fabrication capacity to meet deterrent requirements. Our national requirement, supported by numerous studies and analyses, requires no fewer than 80 war-reserve pits per year by 2030. I support the NNSA plan to achieve this.

Additionally, critical infrastructure investments in uranium and tritium processing, lithium and non-nuclear component production, experimental facilities, and general supporting infrastructure are required. Shortcomings in these areas create operational risks to force readiness and our surge ability to respond to unforeseen technical issues or adversary advancements in their capabilities.

Along with recapitalizing our infrastructure, we must also recruit, train, and retain a qualified workforce to perform the highly specialized nuclear weapons work. The enterprise must enact a human resource strategy that identifies qualified candidates, fosters interest through internships or skilled trade programs, and clears them for classified work as quickly as possible. The critical nature of our nuclear deterrent mission should drive us to hire and retain the best workers our country has to offer.

NUCLEAR WEAPONS SAFETY AND SECURITY

The Nation's nuclear security standard is absolute denial of unauthorized access to nuclear weapons. We work closely with our Navy and Air Force partners to assess nuclear security requirements and adjust our force posture, training, and equipment to address any threat. While we continue to upgrade

and evolve our security capabilities, there are areas where additional investments are necessary to maintain the high standards this mission demands.

The proliferation, ease of use, and sophisticated capabilities of small, unmanned aircraft systems (sUAS) represent a growing threat to our deterrence operations. We rapidly fielded counter sUAS capabilities and are refining tactics, techniques, and procedures to address the developing threat. Focused leadership, vigilance, and dedicated investment are necessary to remain ahead of this threat.

With Congressional support, we recently achieved an important security milestone with the Air Force awarding a contract to replace our aged UH-1N helicopter fleet with the new MH-139. The new helicopter is a critical element in securing our vast ICBM complex and our security forces eagerly await its deployment. The first production unit is already well along the production line in Pennsylvania. With this program moving forward, we can now focus our efforts on replacing security vehicles and deploying advanced communication systems that will provide security personnel uninterrupted situational awareness anywhere they operate.

21st CENTURY DETERRENCE

21st century deterrence not only requires effective NC3, a modernized triad of nuclear ICBMs, SLBMs, and bombers with air delivered weapons, and an ability to design and produce modern and more effective nuclear weapons, it also requires conventional global strike, space control, control of the electromagnetic spectrum, and missile defense. When effectively integrated these capabilities provide the Joint Force the ability to respond to adversary actions in the domain, location and time of our choosing.

CONVENTIONAL GLOBAL STRIKE

Bombers are capable of carrying a variety of conventional and nuclear weapon types with diverse attributes contributing to the flexibility of the deterrent force. Additionally, bombers are integral to our international engagements and partnering through our Bomber Task Force (BTF) missions, and our demonstrated capability to conduct strike missions originating from the continental United States. BTF deployments to the Indo-Pacific and European theaters provide an opportunity to exercise and train with our allies and partners, demonstrate U.S. commitment and resolve, and deter potential adversaries.

The B-1 is the workhorse of the past 17 years of conventional fighting. The B-1 has had many successes in Iraq, Syria, and Afghanistan, while providing USSTRATCOM a credible conventional deterrent against global threats. As the threshold platform for the Long Range Anti-Ship Missile, the B-1 will remain a formidable asset for operations in the Pacific and across the globe. Similar to the B-52, the Air Force remains committed to maintaining the platform to ensure its continued operational effectiveness.

Strategic competitors are investing significant resources to develop offensive and defensive capabilities with the purpose of countering our entire deterrence strategy. To maintain peace, the United States must continue to invest in technological innovation and development of survivable, long-range strike systems able to hold time-sensitive and high-value targets at risk. Today, the only prompt long-range strike capabilities are ballistic missile systems armed with nuclear warheads. We need a conventional prompt global strike capability. This is the USSTRATCOM requirement. Conventional hypersonic strike weapons could meet this requirement and provide responsive, long-range, strike options against distant, defended, and/or time-critical threats when other forces are unavailable, denied access, or not preferred. While conventional hypersonic weapons are not a replacement for nuclear weapons, their unique attributes will increase traditional warfighting advantages and bolster conventional and strategic deterrence.

The DoD identified conventional hypersonic strike as a top research and development priority and is moving forward with a mix of land, sea, and air-launched weapon system options to hold high value, heavily defended and time critical targets at risk. This is a Department-wide, multi-Service, collaborative effort to provide operational capabilities as soon as possible. The Navy's Conventional Prompt Strike (CPS) program spearheads the initiative as the leading technology maturation effort allowing the Navy to field a submarine/ship launched intermediate-range CPS weapon system that can be leveraged into Air Force and Army efforts. The Air Force continues to explore both air-launched hypersonic boost-glide and cruise missile concepts for fielding on a variety of strike and bomber aircraft. The Army plans to incorporate hypersonic strike systems into their traditional long-range precision fires portfolio to expand the reach of surface-to-surface engagements. Each of these capabilities have the potential for early operational fielding within the next few years. This flexible mix of capabilities will provide Combatant Commanders persistent, visible and credible strike options without crossing the nuclear threshold.

SPACE OPERATIONS

For decades, the United States has enjoyed unimpeded freedom of action in space. This allows us to deliver space capabilities that include intelligence collection, missile warning, weather monitoring, satellite communications as well as precise positioning, navigation, and timing essential to joint forces operating globally with unmatched speed, agility and lethality. These same capabilities also contribute to our economy and support our quality of life.

The President has directed a renewed commitment to space. Our commitment extends to the integration of space capabilities across every domain in order to deliver an unmatched global advantage to the Joint Force. What remains unchanged is the fact that our principal competitors regard space as a

warfighting domain. While the United States prefers space to remain free of conflict, we are rapidly moving to meet and overcome challenges impeding our ability to access and freely operate in space. The best way to deter a war that starts in, or extends into space, is to be ready to fight and win.

As part of this effort, the President has given direction for a more cohesive, robust space warfighting organization. In December, upon the recommendation of the Secretary of Defense and the Joint Chiefs, the President directed the establishment of U.S. Space Command (USSPACECOM) as a unified combatant command to improve joint warfighting in the space domain. Moving expeditiously to a unified space command reflects the importance of warfighting in space to the Joint Force, the value of space-focused deterrence elements, and the critical need for space-related response options for the Nation. USSTRATCOM will maintain its focus on this critical mission area until authorities and responsibilities governing space operations fully, and successfully, transition to a new combatant command.

In addition to realizing a dedicated unified space command, we are moving forward on a priority effort executing tasks directed in Space Policy Directive-3. USSTRATCOM is closely partnering with the Department of Commerce (DoC) to transition some non-military aspects of Space Situational Awareness (SSA) data publication and space traffic management-related functions to DoC, while continuing to provide SSA data to support U.S. Government customers and to advance military-to-military relationships that support worldwide combined military operations.

USSTRATCOM's new SSA data sharing initiative, executed through the Joint Force Space Component, releases information about space objects not previously available outside of DoD channels, to enhance SSA data sharing, transparency, and spaceflight safety. This initiative is in line with national policy as part of a larger effort to preserve the safety of, and accessibility to space, so that our Nation, allies, and even the rest of the world, can continue to reap the benefits of space.

Exercises and wargames continue to refine how we coordinate today and how we will work together in the future. This year, Japan participated in the Schriever Wargame for the first time, joining Australia, Canada, France, Germany, New Zealand, and the United Kingdom. We also executed GLOBAL SENTINEL 2018, our fifth annual operational tabletop experiment for SSA, and increased its international participation to include Australia, Canada, the United Kingdom, France, Spain, Germany, Italy, Japan, and the Republic of Korea. Chile and Norway attended as observers.

USSTRATCOM continues to focus on cultivating a robust international engagement environment with several ongoing lines of effort. In doing so, we have generated significant momentum leading to a fully integrated partnership of nations dedicated to defending the peaceful use of space.

Improved partnership with allies is paramount for the safety and security of the space domain. As we continue our Combined Space Operations (CSpO) initiative with Australia, Canada, New Zealand, and the United Kingdom, we recently expanded it with the addition of France and Germany. In July 2018, the

Joint Space Operations Center (JSpOC) transitioned to a Combined Space Operations Center (CSpOC), now the centralized hub for operational space planning and tasking with distributed execution through contributing partners. This effort goes hand in hand with our recent update to Operation OLYMPIC DEFENDER to include international partners and define our operational relationships and associated authorities as we conduct combined operations in the space domain.

The National Space Defense Center (NSDC) continues to mature as our 24/7/365 operational center to protect and defend the space domain. The NSDC remains the focal point for unity of effort across DoD, the Intelligence Community, and the National Reconnaissance Office for information sharing and to rapidly detect, warn, characterize, attribute and defend against threats to our Nation's vital space systems.

Future satellite communications (SATCOM) systems remain key to our continued strategic posture in space. We must design and fund replacement systems and remain on schedule for smooth transition of operations to these new systems. We must expand international SATCOM partnerships, strengthen our industrial base response to acquisition challenges, and integrate commercial opportunities to evolve future satellite payloads towards commercial solutions wherever possible.

The inclusion of our allies is key to building a robust SATCOM network that leverages commercial integration, synchronization and sharing of resources. Multilateral agreements with Canada, Denmark, Luxembourg, Netherlands, and New Zealand provide funding for the operation of Wideband Global SATCOM (WGS). Consequently, the department shares bandwidth proportionally with our partner nations and allocates bandwidth based on the amount of their financial contribution. The growth of the WGS constellation continues as we launch WGS-10 in early 2019, and with newly-infused funding authorized in the FY 2018 NDAA, we plan to procure and launch additional WGS capacity.

Addressing the synchronization gap between terminals, ground infrastructure, and on-orbit satellite capacity remains a significant concern. The narrowband SATCOM legacy constellation is aging, and we must continue to make progress transitioning to the Mobile User Objective System, leveraging commercial capabilities where appropriate. The fielding of new AEHF Extended Data Rate (XDR) capable satellites continued with the launch of AEHF-4 in October 2018. That event, coupled with the anticipated launch of two more AEHF satellites in the next two years, will cover our near term protected communications equities.

USSTRATCOM, in conjunction with the Services, continues to pursue an enterprise approach to fighting SATCOM in a contested domain through the stand-up of the SATCOM Integrated Operations Environment (SIOE). The SIOE is designed to leverage key wideband, narrowband, protected band, and commercial SATCOM enterprise capabilities and expertise to improve our ability to mitigate and fight through SATCOM degraded environment. We will also aggressively pursue the integration of

commercial capabilities that have the ability to provide robust, resilient augmentation of our constellations for a very reasonable cost.

We must improve how we collectively organize, train, and equip ourselves for unfettered access to and freedom to operate in space, providing vital capabilities to joint and coalition forces in peacetime and across the spectrum of conflict. As potential adversaries continue to develop, test, and field more threats to our space systems, USSTRATCOM (and the future USSPACECOM) will benefit from increased focus on these key areas that enable us to deter aggression and protect our interests. We must go faster to stay ahead of potential adversaries, and USSTRATCOM is committed to ensuring sustained space operations with available forces during this transition period until USSPACECOM is ready to assume the lead role.

The President has also focused on the benefits of establishing a sixth branch of the military, the Space Force. The President and Vice President have been personally involved in developing this new Force and Acting Secretary of Defense Shanahan has worked across the Department to define the proposal. The Space Force will be a separate service within the Department of the Air Force. I support the creation of the Space Force within the Department of the Air Force. This will allow proper focus on the warfighting challenges, effective and aligned support to the new USSPACECOM, and given the threats and challenges in the domain, help to build an enduring “space-minded” culture in the department. This effort will not create or require a large, new support bureaucracy. Someday, the Space Force will be its own department, but this is not yet the right time. I thank the President and the Vice President for recognizing that space is a warfighting domain and proposing a fiscally responsible approach for the organizations needed to address these critical challenges. I encourage the Congress to support this proposal.

USSTRATCOM and the future USSPACECOM will directly benefit from the President’s intent to accelerate space acquisition timing. Current 10- to 15-year cycles from requirement to fielded capability are too long. Not only do we miss out on application of new technology and field equipment that is already obsolete on Day 1, but we also need a systemic change to counter potential adversaries with faster acquisition cycles. Commercial innovation has already adapted to exploit faster and faster technology discovery in commercial competition, and we must change to leverage these accelerating opportunities not only to defend our Joint Force in space, but also to protect commercial investments that sustain the global economy. USSTRATCOM (and the future USSPACECOM) look forward to leveraging the benefits of the new Space Force as our organizations focus on two things – defending the space domain and going fast.

JOINT ELECTROMAGNETIC SPECTRUM OPERATIONS (JEMSO)

The Electromagnetic Spectrum (EMS) is the one physical maneuver space shared by all forces in all domains. The EMS is central to the first strategic goal of organizing forces to achieve Joint Force commander objectives. The Joint Force operates in the EMS to achieve superiority at a time and place of our choosing. Our adversaries recognize the need to decisively achieve EMS control and have developed and organized their forces accordingly. In recognition, we must continue to pursue capabilities necessary to maintain EMS superiority. Achieving EMS superiority early in conflict is critical for effective U.S. operations in all domains.

USSTRATCOM, in coordination with DoD CIO/DISA, is actively pursuing development of an Electromagnetic Battle Management (EMBM) system to enable EMS superiority. We are supporting the EMS Operations governance study directed by the Joint Requirements Oversight Council and coordinating with other combatant commands on the development and implementation of JEMSO cells and tactics, techniques, and procedures. Additionally, we continue to engage Australia and North Atlantic Treaty Organization partners to ensure compatible JEMSO doctrine and concepts of operation, and to lay the groundwork for interoperable EMBM systems.

Section 1053 of the FY 2019 NDAA, PL 115-232, provides guidance to the Secretary of Defense on electronic warfare and JEMSO to improve our ability to advocate effectively for requirements. USSTRATCOM is working closely with the Acting Secretary and Services to implement measures of the act, the Electronic Warfare Executive Committee and the previously mandated cross-functional team to identify requirements and specific plans for addressing personnel, capability and capacity limitations in order to ensure effective implementation of DoD's Electronic Warfare Strategy.

THE MISSILE DEFENSE REVIEW

Conducted at the direction of the President, the 2019 Missile Defense Review (MDR) presents the Administration's missile defense policy and strategy. The MDR aligns with the National Security Strategy, the National Defense Strategy, and the 2018 NPR. The MDR reinforces the Administration's commitment to defending the United States and our deployed forces and allies from adversary missile attacks.

The United States and our allies and partners face potential adversaries who are increasing existing missile system capability and capacity; adding new and unprecedented types of armaments to their arsenals; and integrating offensive capability more thoroughly in their coercive threats, military strategy, and war planning. Left unaddressed, this expanding missile threat could embolden our adversaries into mistakenly believing they can coerce us, inhibit our freedom of action, or undermine our

security alliances. A concerted U.S. effort is required to expand and improve existing capabilities for both homeland and regional missile defense.

As stated in the National Security Strategy, the United States has a robust and credible layered missile defense system. When paired with offensive capabilities this combination sends a strong message allowing the United States to deny benefits and impose costs against any potential adversary. Although the United States relies on nuclear capability to dissuade near-peer strategic threats, missile defense endures as a critical component of comprehensive U.S. strategic and tailored regional deterrence strategies. Our regional missile defenses protect against missile attacks on deployed U.S. forces, allies, and partners; assists allies and partners in better defending themselves; preserves freedom of action; and counters adversary anti-access/area denial tactics. The United States is pursuing new concepts and technologies to ensure continuing effectiveness against advanced future threats, including space-based sensors and boost phase intercept. As we address future threats, we must account for the air and missile defense assets required to defend the homeland, while simultaneously improving our regional security architectures. In this effort, there is no one silver bullet, but several layered capabilities are in development.

MISSILE DEFENSE

The 2019 MDR sets the foundation for the next generation of missile defense efforts. Of importance to USSTRATCOM, it provides an opportunity to conduct focused reviews clarifying and optimizing missile defense roles and responsibilities across the Department. This includes opportunity to assign responsibility for integrating pre-launch attack operations with defenses to mitigate missile threats, ensuring warfighter involvement in our Departmental requirements and fielding processes, and assessing how to better use missile warning assets against emerging threats. All of these efforts focus on reviewing current systems and addressing advanced adversary capabilities such as hypersonic threats.

U.S. missile defense capabilities will be sized to provide continuing effective protection of the U.S. homeland against rogue states' offensive missile threats. The United States relies on nuclear deterrence to address the large and more sophisticated Russian and Chinese intercontinental ballistic missile capabilities, as well as to deter attacks from any source consistent with long-standing U.S. declaratory policy as re-affirmed in the 2018 NPR.

As the warfighter advocate for Missile Defense, it is imperative that we focus materiel developers on research, development, testing, and engineering against advanced threats. Rapidly transitioning ready systems with identified funding streams to the Services will free up needed resources for critical research and development efforts such as continued funding of next generation

space systems. Research and development is key to ensuring we keep pace with evolving adversary threats across all domains. Space systems provide valuable solutions to layered tracking and discrimination capability. A space tracking and discrimination constellation combined with next generation Overhead Persistent Infrared systems would provide significant improvements necessary to detect advanced threats. Future space-based sensors may be able to detect, track, and discriminate hypersonic glide vehicle and ballistic missile threats globally. These abilities cannot be fully achieved with the current or any future terrestrial-based radar architecture due to the constraints of geography and characteristics of future missile threats.

Boost phase intercept is also showing promise. Increasing the power and lethality of laser, neutral particle beam, and high power radio frequency systems for multi-mission applications, along with new fighter-delivered interceptors, can exponentially enhance our missile defenses.

ASSURING ALLIES AND PARTNERS

USSTRATCOM cannot accomplish its mission without integrating allies and partners. Allies are critical to responding to mutual threats, preserving our shared interests, and are the greatest asymmetric advantage the United States has over potential adversaries. The Command continues to expand and enhance the viability of our Nation's alliances and partnerships, setting conditions across the globe to deter our adversaries.

USSTRATCOM's engagements with allies and partners are critical in shaping the strategic environment, strengthening relationships, and building trust. In doing so, we are prepared to act in a combined manner to deliver a decisive response in crisis or during contingency operations.

During 2018, our Command conducted over 50 bilateral engagements with senior leaders from Australia, Brazil, Canada, Denmark, France, Germany, Great Britain, Iceland, Japan, Netherlands, Pakistan, the Republic of Korea, Taiwan, and Thailand.

Our 25-nation, multinational missile defense policy campaign of experimentation, NIMBLE TITAN (NT) 2018, concluded with a senior leader seminar held at the new NATO headquarters in Brussels, to include representatives from Europe, the Gulf States, the Indo-Pacific, and North America. The NT 2020 campaign is just beginning, and continues to show increased interest by partners and allies.

USSTRATCOM works closely with our allies and partners to enhance awareness within the space domain, increase the safety of spaceflight operations, and promote the responsible, peaceful, and safe use of space. During 2018, USSTRATCOM signed new national agreements with Brazil, Denmark, the Netherlands, New Zealand, and Thailand for sharing SSA services and data. Currently, USSTRATCOM has agreements with 18 nations, two intergovernmental organizations, and over 70 commercial satellite launchers, owners, and operators.

Our efforts in this area increase military interoperability, improve alliance capability and capacity, and integrate our critical defense missions. The Command's engagements assure allies and partners of the United States' extended deterrence commitments and reinforce non-proliferation goals and objectives.

CONCLUSION

USSTRATCOM is a global warfighting command. Success in all of our missions depend on the Command's greatest strength – our people. The 162,000 men and women stationed around the globe, operating in all domains, undertake the active defense of our Nation every day. These Soldiers, Sailors, Airmen, Marines, and civilians are warfighters, dedicated to preserving the peace and when called upon, ready to dominate and win in conflict. Successful mission execution has the appearance of “business as usual” which belies the effort and impact of executing at the highest standard every day.

Today, our capabilities are safe, secure, and effective and our forces are combat-ready. With continued support of the programmed major investments, our forces will prevent nuclear war and ensure that regardless of how would-be adversaries might choose to attack the United States, we will always retain decisive response options, across the spectrum of conflict, for the President.

We are dominant today. However, advantages we have long-held are eroding, challenging the Command's ability to deter strategic attack, engage in active defense, assure our allies and partners, and fight and win in and across all domains if necessary. We cannot let this erosion continue. We must maintain our strategic advantage. We must take calculated, smart risks and move fast once again. With sustained Congressional support, USSTRATCOM will continue to effectively defend the nation.

Nuclear war cannot be won and must never be fought. Therefore, to prevent war we must be ready for war. We must maintain today's triad of nuclear forces, while simultaneously building the triad of tomorrow. We must integrate all domains and capabilities together to effectively deter in the 21st century. If we are successful, we will continue to live up to our motto, coined over 60 years ago. Peace is our Profession...