



**U.S. ARMY**

**2019**

# **ARMY MODERNIZATION STRATEGY:**

**Investing in the Future**



## Army Modernization Strategy

The Army Modernization Strategy (AMS) describes how the Total Army – Regular Army, National Guard, Army Reserve, and Army Civilians – will transform into a multi-domain force by 2035, meet its enduring responsibility as part of the Joint Force to provide for the defense of the United States, and retain its position as the globally dominant land power. The 2018 U.S. Army Modernization Strategy Report to Congress introduced the Army’s six materiel modernization priorities to make Soldiers and units more lethal to deploy, fight, and win our Nation’s wars. This 2019 AMS expands the Army’s approach beyond those six priorities, outlining a more holistic approach to modernization while maintaining continuity of priorities. Modernization is a continuous process requiring collaboration across the entire Army. Therefore, while this AMS outlines an end state for the future Army in 2035, Army modernization will remain ongoing as we must continue to test and refine operating concepts, draw on emerging technologies, and anticipate changes in the operating environment.

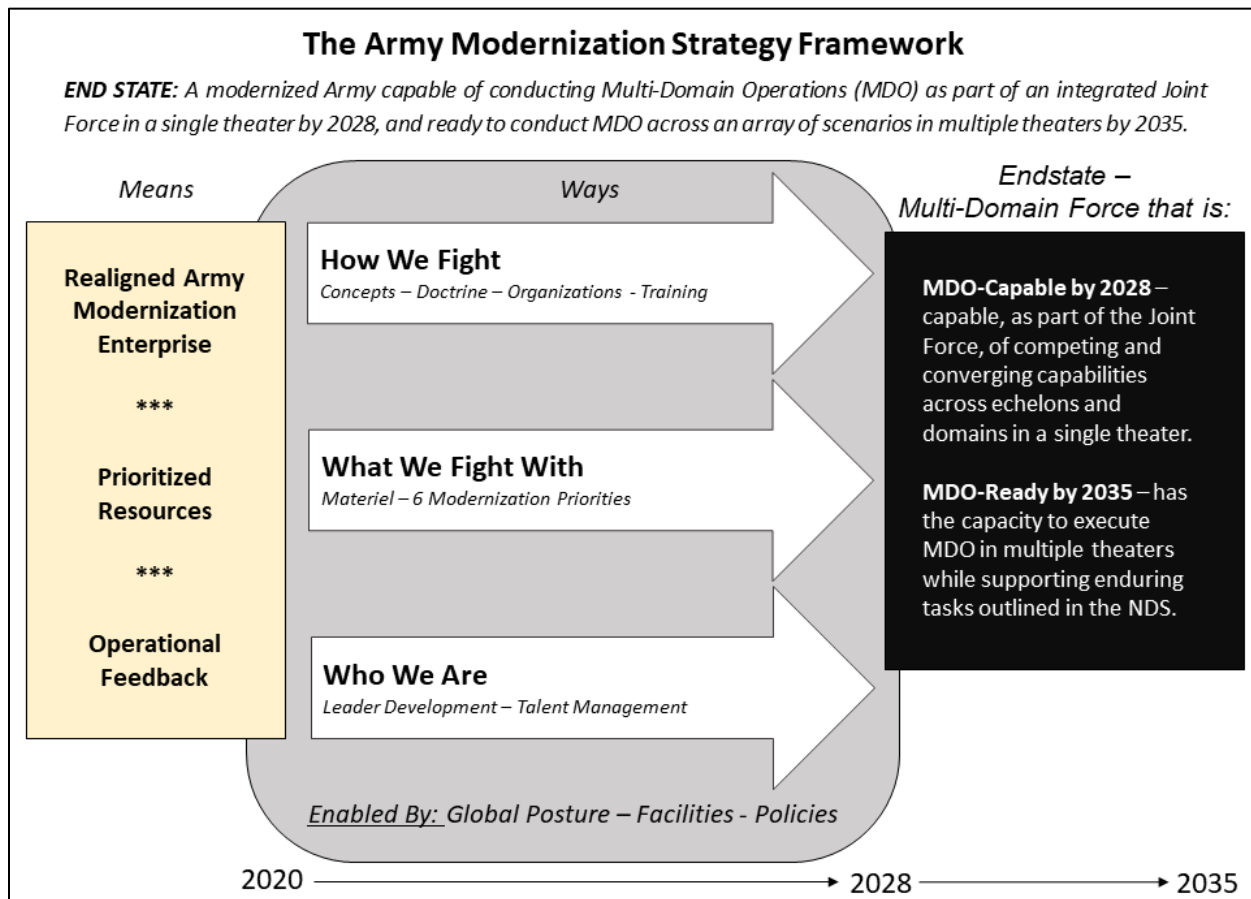
### **Army Modernization Framework**

The primary end state of the 2019 AMS, nested with the 2018 Army Strategy, is a **modernized Army** capable of conducting **Multi-Domain Operations** (MDO) as part of an integrated Joint Force in a single theater by 2028, and ready to conduct MDO across an array of scenarios in multiple theaters by 2035. The MDO concept describes how the Army will support the Joint Force in the rapid and continuous integration of all domains of warfare – land, sea, air, space, and cyberspace – to deter and prevail as we compete short of conflict, and fight and win if deterrence fails.

To achieve this end state by 2035, the Army will modernize **how we fight, what we fight with, and who we are**. This approach integrates the elements of doctrine, organizations, training, materiel, leader development and education, personnel, facilities, and policy (DOTMLPF-P) within the Army, with other Joint Force elements, and alongside allies and partners. **How we fight** is the realm of concepts, doctrine, organizations, and training. **What we fight with** is characterized by materiel development and procurement, guided by the Army’s six materiel modernization priorities. **Who we are** encompasses leader development, education, and 21<sup>st</sup> century talent management. Modernizing across each effort in a synchronized way will ensure the Army has well-trained Soldiers, organized into effective warfighting formations with modern weapon systems and sufficient capacity to win in any conflict, on any battlefield, anywhere in the world. These elements are interdependent and require corresponding updates to global force posture, facilities, and policies to ensure the Army’s modernization efforts remain synchronized over time and with the rest of the Joint Force.

The Army’s reform efforts have reduced bureaucracy and realigned funding towards our top priorities to enable these modernization efforts. The Army established Army Futures Command (AFC) to realign elements of the modernization enterprise and bring unity of effort to the future force development process. For example, Cross-Functional Teams (CFT), subordinate elements of AFC, align requirements developers with acquisition experts and representatives from the testing, logistics, science and technology, and other communities, dramatically reducing the time span from identification of a capability gap to prototype testing and operational experimentation. The Army has also demonstrated its commitment to fully resourcing priority modernization

efforts. The Army has already realigned over \$33B in the FY2020-2024 Program Objective Memorandum (POM) to ensure adequate funding for CFT signature efforts. Together, the realignment of the modernization enterprise and prioritization of funding, combined with feedback from the operating force, are the means by which we will execute the AMS.



**Figure 1. The Army Modernization Strategy Framework**

### The Strategic Environment: Renewed Great Power Competition in the Information Age

The 2018 National Defense Strategy (NDS) states that we must prioritize long-term strategic competition with China and Russia while deterring regional adversaries and sustaining irregular warfare competency. Political, economic, social, and technological changes will continue to create challenges and opportunities for the U.S. Army as we maintain our land dominance. Future warfare will only expand in geographic scale, domains, and types of actors while decision cycles and reaction times compress.

Russia is the Army’s current “pacing threat.” It is our nation’s most capable nuclear-armed threat in the near term. The Russian military has made considerable progress in reviving its capabilities to wage modern war, and it has capitalized on operational lessons learned from Crimea, eastern Ukraine, and Syria. Russia has unveiled new capabilities such as the use of proxies, unmanned

and robotic systems, precision strike weapons, and sophisticated cyber capabilities. It continues to develop other capabilities, including airborne forces, and chemical and biological weapons.

China is also rapidly modernizing its armed forces, and is projected to surpass Russia in the mid-to-long-term as our most capable threat. China is one of the world's leaders in technological research and development. China is now conducting research into a wide range of militarily relevant technology including Artificial Intelligence (AI), hypersonics, robotics, swarming, advanced materials, bio-engineering, quantum information sciences, space technologies, biometrics, and other areas. Their focus on anti-access and area denial (A2/AD) capabilities includes naval forces, cruise and ballistic missiles, and a formidable proficiency in cyber and space operations.

The United States faces these challenges alongside numerous allies and partners. Russia and China often compete with non-military instruments of national power, and many countries are increasingly concerned by their revisionist actions. The Army must continue to work closely with our longstanding allies and partners, and attract new partners that offer unique perspectives and capabilities, as we pursue this modernization approach. Alliances strengthen our military and political partnerships, signal that strength to deter potential aggression, increase interoperability and operational effectiveness, position forces and capabilities for future challenges, and refine our operational concepts and tactical practices.

### **Assumptions**

This strategy is based on four key assumptions. Changes in any of these assumptions could affect the Army's strategic approach to modernization.

- The Army's budget will remain flat, resulting in reduced spending power over time.
- Demand for Army forces will remain relatively constant while we execute this strategy.
- Research and development will mature in time to make significant improvements in Army capabilities by 2035.
- Adversary modernization programs will stay on their currently estimated trajectories in terms of capability levels and timelines.

### **The Strategic Approach: Maintaining our Priorities and Generating Momentum**

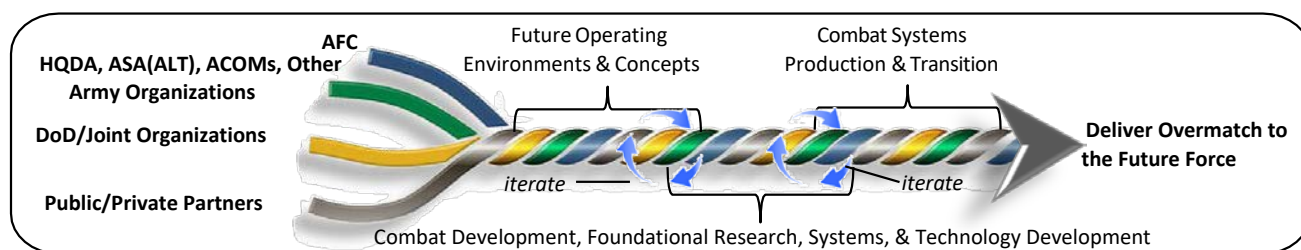
The AMS supports the priorities outlined in the 2018 Army Strategy, which will shift our top focus to modernization by FY2022 while sustaining readiness for current operations. The six Army modernization priorities – long range precision fires, next generation combat vehicles, future vertical lift, network, air and missile defense, and Soldier lethality – remain constant. Additionally, the Army will continue to reform its business processes, shifting from Industrial Age to Information Age approaches, and ensuring we have sufficient funds available for the Army's modernization priorities. Our Congressional, defense industry, and international partners can remain confident that these priorities – and our focus – remain constant. A deliberate, synchronized approach that modernizes **how we fight, what we fight with, and who we are** will enable the Army to achieve irreversible momentum now to build the MDO ready force by 2035.

Modernization is a continuous process requiring collaboration across the entire Army, and Army Futures Command brings unity of effort to the Army's modernization approach. AFC, under the



strategic direction of Headquarters, Department of the Army (HQDA), develops and delivers future concepts, requirements, and organizational designs based on its assessment of the future operating environment. AFC works closely with the Army’s modernization stakeholders to integrate and synchronize these solutions into the operational force across the DOTMLPF-P. In addition to AFC, key Army stakeholders of the modernization enterprise include:

- **Headquarters, Department of the Army (HQDA)**, provides strategic guidance and direction, develops Army policies, prioritizes resources, and sets the strategic direction for the Army.
- **Assistant Secretary of the Army for Acquisitions, Logistics, and Technology**, working closely with AFC, leads Army acquisition efforts.
- **Training and Doctrine Command**, with its functional Centers of Excellence, is the lead for doctrine development, organizational updates, training, leader development and education, and acquiring and developing people.
- **Army Materiel Command**, newly reorganized to include Installations Management Command, will execute the modernization of facilities – the Army’s power projection platforms – to meet requirements for training, sustaining, projecting, and maintaining the future force.
- **Forces Command** plays a key role as the service force provider by enabling the Army to test, experiment, and draw on the insights of the operational force, while balancing readiness requirements for current operations and contingencies.



**Figure 2. Integrating Modernization Across the Army**

## How We Fight

The Army will continuously update its doctrine, organizational designs, and training to conduct operations as a multi-domain force. The Army will continue to validate the MDO concept, and refine it as necessary. The Army will pursue every opportunity to rapidly integrate MDO into our evolving doctrine. Additionally, the use of experimentation, war gaming, and analysis will inform the organizational design, materiel solutions, and training requirements for the MDO ready force. Units will train for MDO using the new Synthetic Training Environment capabilities at home station, and redesigned combat training centers will enable the collective training of units at echelon to conduct MDO.

## **Multi-Domain Operations**

Near-peer competitors such as China and Russia seek to achieve their aims by using multiple layers of stand-off across all domains – land, sea, air, space, and cyberspace – to separate U.S. forces and our allies in time, geography, and function. They hope to deny our ability to project combat power, thereby creating de facto spheres of influence. Our competitors will do this through a combination of long-, mid-, and short-range weapons systems, conventional forces, integrated air defenses, electronic warfare and jamming, cyber-attacks, and denial of space-based capabilities, such as reconnaissance, navigation, and communications, as well as an array of political and informational tools.

To solve the problem of layered stand-off, the MDO concept describes how a strategically-postured Army, operating as part of the Joint Force, will compete below the threshold of armed conflict, penetrate and exploit windows of opportunity to break through enemy standoff capabilities, and then return to competition on favorable terms. The MDO concept defines three tenets of multi-domain operations. The first tenet is “calibrated force posture” – a combination of forward presence, expeditionary capability, and access to joint, national, and partner capabilities. The second tenet is the use of “multi-domain formations” that have the capacity, capability, and endurance to maneuver and choreograph effects across multiple domains. The final tenet is “convergence” – the ability to rapidly converge effects from multiple domains, simultaneously and nearly continuously, using multiple forms of attack and redundant sensor-to-shooter networks enabled by robust mission command. An MDO capable force will allow the Army, as part of an integrated Joint Force, to expand the options available to civilian authorities, to include effective deterrence and competition short of armed conflict, or timely response to an attack attempting to permanently change the status quo.

## **Multi-Domain Formations**

The Army must provide a full range of capabilities to enable the Joint Force commander’s ability to deter, compete, and if required quickly transition to armed conflict. Additionally, the Army must have enough expeditionary capacity available to provide follow-on forces to reinforce the theater if needed. These capabilities are collectively referred to as a “force package.”

In the MDO capable force of 2028, force packages will consist of modernized formations that are strategically positioned and able to leverage national-level capabilities and authorities. The MDO capable force will combine tailorable formations of networked manned and unmanned platforms, fires, electronic warfare, cyber, intelligence, surveillance, reconnaissance, engineers, sustainment, communications, and protection capabilities at all echelons, from squad to theater.

The Army will build, employ, and refine the capabilities in the MDO force packages over time, based on continuous assessments of the strategic environment. This development will be driven by continuous operational testing and analysis – such as ongoing experiments with Multi-Domain Task Forces in both the European and Indo-Pacific theaters, regular war gaming and experimentation, and rapid and iterative capability assessments with units deployed and in the field. The Army will use the lessons learned from this experimentation to refine the design of future multi-domain formations.

## What We Fight With

The Army's six modernization priorities will drive materiel development for the MDO capable force. The whole is greater than the sum of the parts – it is the combination of these capabilities that will allow the Army to fight MDO.

- **Long range precision fires** enable multi-domain forces to penetrate and neutralize enemy A2/AD capabilities while ensuring military overmatch at every echelon.
- **Next generation combat vehicles** increase the firepower, speed, and survivability of land forces, allowing them to maneuver into superior positions on the battlefield and pair with robotic vehicles.
- **Future vertical lift** platforms and technologies increase the maneuverability, endurance, lethality, and survivability of Army aircraft – increasing their operational reach and effectiveness against near-peer competitors.
- The modernization of Army **network** technologies is necessary to command and control forces distributed across vast terrain, converge effects from multiple domains, and maintain a common situational understanding in MDO.
- Our competitors have invested heavily in their indirect fire and missile capabilities necessitating the modernization of our **air and missile defense** capabilities. New technologies will defend ground forces against adversary air threats, and will also defend ours and our allies and partners' infrastructure against a host of air and missile threats.
- Finally, efforts modernizing **Soldier lethality** will increase the capability of individual Soldier weapons, provide Soldiers with enhanced night vision, and increase their ability to quickly understand and react to emerging situations – increasing their lethality, precision, and survivability. These efforts will be complementary to ongoing Soldier performance initiatives to improve fitness, nutrition, and resiliency, to ensure we are modernizing the Soldier, not just the equipment for our Soldiers.

Army Futures Command's CFTs enable the modernization priorities. CFTs bring together the major stakeholders – requirements, acquisition, science and technology, testing, and logistics – to work together to develop requirements in support of MDO in a timely manner. Early prototyping, testing, and touch points with Soldiers from the operational force help ensure that the solutions generated are the right ones. The eight CFTs align with the Army's six modernization priorities, plus two enabling areas – assured positioning, navigation, and timing and the synthetic training environment. As a component of a persistently modernizing Army, CFTs will adjust as technology advances and our competitors adapt. In addition, Army forces will require incremental modernization of current programs in order to field an MDO ready force. As CFT programs are fielded, some current systems will be upgraded to provide complementary overmatch capabilities.

<b>Cross Functional Team</b>	<b>Signature Efforts</b>
<b>Long Range Precision Fires</b>	<ul style="list-style-type: none"> <li>• Strategic Fires</li> <li>• Precision Strike Missile</li> <li>• Extended Range Cannon Artillery</li> </ul>
<b>Next Generation Combat Vehicle</b>	<ul style="list-style-type: none"> <li>• Optionally Manned Fighting Vehicle</li> <li>• Armored Multi-Purpose Vehicle</li> <li>• Mobile Protected Firepower</li> <li>• Robotic Combat Vehicle</li> </ul>
<b>Future Vertical Lift</b>	<ul style="list-style-type: none"> <li>• Future Attack Reconnaissance Aircraft</li> <li>• Future Long Range Assault Aircraft</li> <li>• Future UAS</li> <li>• Modular Open Systems Architecture</li> </ul>
<b>Network</b>	<ul style="list-style-type: none"> <li>• Unified Network</li> <li>• Command Post Common Environment</li> <li>• Joint Interoperability/Coalition Accessible</li> <li>• Command Post Mobility/Survivability</li> </ul>
<b>Assured Positioning, Navigation, and Timing</b> <i>Enabling Area</i>	<ul style="list-style-type: none"> <li>• Assured Position, Navigation, and Timing</li> <li>• Tactical Space</li> <li>• Navigation Warfare</li> </ul>
<b>Air and Missile Defense</b>	<ul style="list-style-type: none"> <li>• Army Integrated Air and Missile Defense</li> <li>• Maneuver – Short Range Air Defense</li> <li>• Indirect Fire Protection Capability</li> <li>• Lower – Tier Air and Missile Defense Sensor</li> </ul>
<b>Soldier Lethality</b>	<ul style="list-style-type: none"> <li>• Next Gen Squad Weapon – Automatic Rifle</li> <li>• Next Gen Squad Weapon – Rifle</li> <li>• Enhanced Night Vision Goggle – Binocular</li> <li>• Integrated Visual Augmentation System</li> </ul>
<b>Synthetic Training Environment</b> <i>Enabling Area</i>	<ul style="list-style-type: none"> <li>• Synthetic Training Environment Information System</li> <li>• Reconfigurable Virtual Collective Trainers</li> <li>• Squad Immersive Virtual Trainer</li> <li>• Squad/Soldier Virtual Trainers</li> <li>• One World Terrain</li> </ul>

**Figure 3. Current Cross Functional Teams and Signature Efforts**

The Army may not succeed on the first demonstration and experimentation for every system, but we will learn and rapidly adjust programs and concepts. Key to developing the technologies necessary to meet our modernization goals is encouraging a culture of innovation within the Army, and forging new partnerships with traditional and non-traditional industries, academia, and other partners. We will use adaptive acquisition approaches that leverage the full scope of Congressional authorities, such as Middle Tier Acquisition, to accelerate development, production, and delivery of materiel capabilities. We will also use innovative contracting tools, such as Other Transaction Authorities and Cooperative Research and Development Agreements, to foster innovation and encourage American small and medium enterprises to help meet current and future needs of our Soldiers. We will employ a deliberate and balanced approach to intellectual property (IP) that will make us more sophisticated customers, enabling us to access creative technologies emerging from the private sector while still protecting IP.

In addition to shifting the way the Army approaches acquisition, we will also fundamentally change the way we develop materiel capability. Advanced manufacturing methods and materials will be incorporated into system design, development, production, and sustainment. Adoption of



these advanced technologies throughout a system's lifecycle will allow us to quickly develop the next generation of weapons systems and maintain overmatch against near-peer adversaries.

Finally, investing in digital transformation and the modernization of the Army's underlying network and computer infrastructure is essential to our success. Specifically, the Cloud is the foundation for this entire modernization effort. The Army will develop cloud computing technologies, improve data access and sharing environments, and streamline software development tools and services. Together, these technology investments will allow the Army to take advantage of emerging machine learning and AI technologies to understand, visualize, decide, and direct faster than our competitors. By leveraging the Cloud open-architecture, information can flow rapidly between the enterprise and Soldiers on the ground. This will enable commanders to counter adversaries in the information environment as effectively as they do in physical domains and win in the cognitive space.

### **Who We Are**

The Army has always relied upon capable and highly trained Soldiers. The complexities of emerging technologies and the global security environment, and the sophistication of our MDO concept, make that reliance all the greater. As more fully articulated in the 2019 Army People Strategy, the Army will update its leader development and education processes to increase critical, creative, and systems thinking so that the next generations of Army leaders are prepared for the complexities of MDO. We will use talent management principles to transform our personnel systems to maximize individual knowledge, skills, behaviors, and preferences that help our Soldiers and Civilians reach their full potential. Additionally, we will continue to explore more flexible talent management approaches and opportunities that ensure the Total Army has the talent it needs for the future environment. Finally, the new Squad Performance Model will use performance metrics to evaluate how modernization efforts are improving lethality at the Soldier level.

The Army will always fight as a member of the Joint Force alongside allies and partners. Partnerships are key to great power competition, and our nation's allies and partners give us an important asymmetric advantage. The knowledge that we are prepared to fight together, and that we are willing to do so when needed, is a powerful deterrent to potential adversaries.

As part of our modernization effort, we will seek opportunities to develop concepts and capabilities with our allies and partners. We will strengthen not only technical interoperability, but also human and procedural interoperability, to ensure that we can fight as one team. We will use exercises, training opportunities, and leader exchanges to strengthen that interoperability, and to refine our approaches to MDO as a Joint and combined force.

### **Critical Enablers**

By 2022, the Army will determine the calibrated force posture it needs for MDO – the combination of forward presence, expeditionary capacity, and access to national level assets. Strategic force posturing will be accompanied by the delegation and synchronization of those authorities necessary to conduct MDO.

The Army will also modernize its installations and facilities to support new technologies and materiel that enable MDO, and will develop more efficient, effective, and resilient systems to support how we mobilize, protect, project, and sustain expeditionary forces from home station. Army Prepositioned Stocks mutually support modernization and expeditionary capability to provide strategic flexibility for MDO. Furthermore our installations and organic industrial base will modernize to support readiness, mobilization, and surge requirements for conflict, and to support the equipment developed by the CFTs and fielded to the Total Army.

Additionally, MDO requires an ongoing reassessment of existing policies and authorities across three broad areas: access, surveillance, and employment. Army forces require access to military and civilian networks that enable surveillance, deception, and protection operations in competition and armed conflict. If competition escalates into armed conflict, Army forces must have the ability to rapidly employ capabilities such as electronic attack, offensive cyberspace and space, and lethal strike.

Finally, the Army conducts relevant, transformative research rooted in the tenets of discovery, innovation, and transition to deliver science and technology (S&T) solutions. Army S&T maintains focused investments in basic and applied research. The Army will execute an investment strategy that delivers underpinning knowledge and technology which addresses the elements of force modernization. To support this effort, the Army is aligning its laboratories to priority modernization efforts and developing external partnership agreements. For example, AFC has cooperative agreements with Texas A&M University for hypersonics, University of Texas-Austin for robotics, and Carnegie Mellon University for artificial intelligence. Army S&T will continue to have a heavy emphasis on mid- and far-term capabilities, through threat based, concept driven and capability informed work.

Army Priority Research Areas
<b>1. Disruptive Energetics:</b> Greater than 2x energetic energy over smaller footprints.
<b>2. RF Electronic Materials:</b> Taking advantage of optical and thermal properties of diamond materials for directed energy.
<b>3. Quantum:</b> Optimized information transfer, sensing, and communication with unparalleled security.
<b>4. Hypersonic Flight:</b> Aerodynamics, materials, and processes.
<b>5. Artificial Intelligence:</b> Increasing speed and agility in which we respond to emerging threats.
<b>6. Autonomy:</b> Maneuverability and off-road mobility of platforms.
<b>7. Synthetic Biology:</b> Reactive and responsive skins/spectrally selective materials/anti-materiel properties.
<b>8. Material by Design:</b> Protection overmatch against future threats.
<b>9. Science of Additive Manufacturing:</b> For next generation munitions for increased range and lethality.

**Figure 4. Army Priority Research Areas**

## **Resourcing**

The Army reinvigorated its budgeting processes and realigned over \$33B in the FY2020-2024 POM to fund the six material modernization priorities, new organizations, training upgrades, facilities improvements, and other associated modernization efforts. This was an important start, but the costs of modernization while maintaining readiness are only going to grow as systems enter low-rate initial production and then procurement. The Army must continue to find savings through reform initiatives to ensure we have the resources available to develop and scale systems. For example, the Army will take a deliberate approach to transitioning equipment to sustainment based on business case analyses. This entails assessing our capability needs, acquisition programs, and existing systems to determine the most economical sustainment approach. In many cases, it will result in forgoing additional incremental upgrades to legacy systems. The Army will also eventually divest some legacy programs to free up resources for modernization priorities.

## **Towards an MDO Ready Force: The Temporal Framework to 2035**

Multi-Domain Operations will fundamentally transform the Army. Implementing new formations and capabilities will occur over two periods of change. The first is the period of rapid change, as the Army fields and tests first solutions. The second period, the period of fundamental change, will operationalize MDO and produce the MDO ready force of 2035.

To meet the primary goal of an MDO ready force in 2035, the Army has established three early way points. These targets will help ensure steady progress and orchestration of effort across the Army. Continued flexibility, learning, and adjustment will ensure the Army fields the MDO ready force of 2035 and continues to achieve emerging MDO milestones in decades beyond.

### **Period of Rapid Change**

- **FY2020 to FY2022.** During this period, the Army will begin initial fielding of the CFTs' signature efforts. These efforts will inform, and be informed by, MDO concept testing, experimentation, and analysis to validate and refine elements of the MDO concept. By FY2022 the Army will begin adjusting global force posture based on DOTMLPF-P analysis requiring input from modernization stakeholders across the Army, while beginning to address challenges of achieving the MDO ready force in 2035.
- **FY2023 to FY2025.** Based on the previous period of testing, experimentation and analysis, the Army will adapt its formations and organizational designs to incorporate the modernized equipment required to execute MDO. The Army will also shift its training paradigm to meld sophisticated live, virtual, and synthetic environments while transforming existing training centers to simulate multi-domain environments. Training and Doctrine Command will continue to transform MDO concepts into doctrine. Facility modernization at home and abroad will set conditions for the calibrated force posture required of the MDO capable force.

### **Period of Fundamental Change**

- **FY2026 to FY2028.** During this period, the Army will certify the first MDO force package and begin building the next one. Training centers will adapt to accept echelons

from brigade through field army. The Army will field systems such as the Optionally Manned Fighting Vehicle and the Future Attack Reconnaissance Aircraft.

- **FY2029 to FY2035.** During this period, the Army will finish certifying the next force package while continuing to innovate and adjust across the DOTMLPF-P spectrum to realize an MDO ready force equipped with the strength, agility, and resilience to retain a competitive advantage against any adversary. Aggressive training, testing, and analysis will validate MDO doctrine and ensure continued seamless integration of capabilities into new and existing formations.

## **Risk**

The United States has accumulated substantial strategic risk over the past few decades to our ability to maintain land dominance against great power competitors, as we focused on developing capabilities to counter insurgent and terrorist threats. The 2019 AMS builds on the Army's recent efforts to reduce that risk by maintaining clearly identified modernization priorities, and making difficult, but necessary choices to ensure sufficient funding for priority materiel solutions. While the AMS mitigates those risks, it introduces others, which Army leaders will need to continue to monitor.

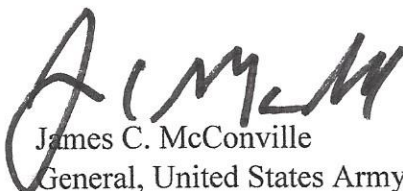
- **Readiness.** Readiness risk increases as resources are prioritized toward modernization efforts. The Army has no choice but to do both – remain ready and modernize. Increasing the resources devoted to program development to support modernization is likely to put pressure on the resources available for near-term needs.
- **Capability.** Capability risk increases as we transition legacy systems to sustainment and introduce new combat systems, at relatively greater volume, and in a relatively short period of time. These transitions will stress the Army's logistical system. They will also stress the training enterprise, which will have to support new training requirements from the Army's generating and operating forces. Capability risk also increases if modernization initiatives are delayed. The organizational and materiel initiatives supporting MDO are designed to be inter-dependent, and changes or delays in one area are likely to affect the overall synchronization of DOTMLPF-P effort.
- **Infrastructure.** Infrastructure risk increases if the Army does not modernize facilities at pace with new weapons systems and formations. These transitions could stress installations with unplanned infrastructure requirements, which could put fielding timelines at risk. Modernized facilities provide the supporting infrastructure to fully capitalize on new technologies. The Army will plan for upgrades to maintenance facilities, motorpools, network infrastructure, administrative facilities, housing, barracks, secure facilities, and utilities upgrades to keep pace with other modernization efforts and mitigate this risk.
- **Budget.** Budget risk increases if funding decisions are delayed, risking early industry commitment to identified programs and competition, and requiring additional funding from the Army budget. Trade-offs exist between science and technology advancements and DOTMLPF-P activities until technologies are available to achieve the required capabilities of MDO. Solutions along all elements of DOTMLPF-P must mitigate materiel shortfalls in order to produce a MDO ready force by 2035.

## Conclusion

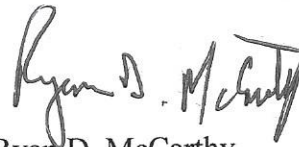
The 2019 Army Modernization Strategy lays the foundation for future Army modernization – how we will develop a force ready for Multi-Domain Operations, and how we will set conditions to remain a continuously modernizing Army. The Army will synchronize these modernization efforts using the more detailed Implementation Plan and Annual Modernization Guidance, which will be published annually as annexes to the Army Planning Guidance. Successful implementation of this strategy requires a whole Army effort, with HQDA and each Army Command playing a key role in close coordination with the Joint Force, Congress, allies and partners, industry, academia, and other partners. If we modernize effectively, efficiently, and persistently, the Army can do its part to ensure we are prepared to compete, deter, fight and win when our Nation calls.



Michael A. Grinston  
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