



The Mitchell Forum

Accelerating Change for Rapid Global Mobility Delivering Joint Force Success in the High-End Fight

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Abstract

Rapid Global Mobility underpins Joint Force global power projection. It is integral to Joint Force success across the competition continuum—from humanitarian assistance and disaster relief operations to armed conflict. Without a credible, interoperable mobility force capable of projecting and sustaining Joint Force combat power at strategically relevant speed, scale, and distance, the United States cannot compete in the modern world. To meet this requirement, Air Mobility Command is shifting focus to high-end adversaries, maximizing full-spectrum readiness across its core missions while expanding Joint Force capability and interoperability, and modernizing for the future battlespace. By accelerating the advancement of Rapid Global Mobility capabilities, Air Mobility Command is transitioning from an enabler to an indispensable maneuver force, ensuring the Joint Force can compete, deter, and win across the competition continuum both today and in the future.

Introduction

The 2018 National Defense Strategy marked the Department of Defense's shift in priority and focus to Great Power Competition. This transition ended decades of force design, warfighting concept development, and readiness generation focused on combat operations in the Middle East and the Counter-Violent Extreme Organization (C-VEO) mission. New focus and priority is now on peer adversaries who spent the last thirty years studying the United States and, in turn, developing the strategies and weapon arsenals specifically designed to defeat the U.S. military's operational centers of gravity and critical warfighting capabilities. As the air component to United

States Transportation Command, and Lead Major Command for the Air Force's core mission of Rapid Global Mobility, how does Air Mobility Command transform at the speed required to ensure the nation can continue to compete in this new global strategic environment? Air Mobility Command is accelerating a cultural paradigm shift away from C-VEO to the high-end fight, maximizing full-spectrum readiness while expanding Joint Force capability and interoperability, and modernizing the Mobility Air Force for the future battlespace. Through these efforts, Air Mobility Command is transitioning from an enabler to an indispensable maneuver force that will deliver the global combat power projection and sustainment needed to compete, deter, and win in the future high-end fight.

Rapid Global Mobility

As the most responsive force in the physical domain, the U.S. Air Force rapidly delivers global, agile, and lethal combat air power to defend the United States and protect our allies and partners. Air Mobility Command, through the

execution of its Rapid Global Mobility mission, projects and sustains Joint Force global combat power by rapidly moving personnel, materiel, supplies, and fuel in and through permissive and contested environments. The unique and defining characteristics of Rapid Global Mobility—speed, range, flexibility, and responsiveness—differentiate air mobility operations from other modes of combat projection and sustainment and enable an increased velocity of Joint All-Domain Operations. As the Joint Force accelerates to a Joint solutions-focused, maneuver-based military dominant in all domains, the criticality of Rapid Global Mobility to Joint Force success—across the competition continuum—cannot be overstated. Accordingly, Air Mobility Command must ensure credible Rapid Global Mobility capability and capacity for the Air Force and Joint Force to compete, deter, and win, in today's modern world.

Cultural Paradigm Shift

Air Mobility Command is accelerating toward a new culture designed to compete and expand Rapid Global Mobility comparative advantages over the nation's adversaries. It is an innovative, results-oriented culture focused on reasserting the command's competitive edge by achieving information dominance through targeted digital modernization. It is a data-centric culture where Mobility Airmen embrace data as a weapon system, and artificial intelligence and machine learning-driven analytics as the tools to harness it for operational effects. A culture where emboldened Mobility Airmen have a competitive, forward-looking "safe-to-fail"—verses "fail-safe"—mindset, and harness the rapid speed of groundbreaking technological discoveries to drive innovation and accelerate change. It is a culture with a



Figure 1: U.S. Air Force F-22 from the 525th Fighter Squadron joins up behind an Alaska Air National Guard's KC-135 Stratotanker aircraft from the 168th Wing to refuel during North American Aerospace Defense Command's Arctic air defense exercise, Amalgam Dart 21-2, March 23, 2021. Source: U.S. Air Force

renewed resolve to integrate with allies and partners and strengthen partnerships with industry and academia teammates. Most importantly, it is a culture that champions and embraces diversity and inclusion as a warfighting imperative—one that fuses the skills and talents of all Airmen to solve the command's most difficult challenges and advance its warfighting comparative advantages.

To operationalize this new culture, Air Mobility Command is adapting as an organization and embracing the characteristics of a learning, complex, and adaptive system. While meeting current readiness standards, this organizational change empowers tactical-level commanders with the increased responsibility and autonomy to innovate and accelerate the solutions required to execute their specific mission in the rapidly changing threat environment. It prizes and champions field-identified and field-elevated solutions from Airmen,

civilians, and contractors at all levels to drive change and propel the command into the future. This change also encourages limited operational fielding, small group tryouts, and campaigns of demonstration and experimentation as collaborative, learning opportunities to test the utility and validity of these new solutions. It leverages higher-level engagements with both internal and external stakeholders—such as Agile Flag and other Flag events—and integrated wing-level, MAJCOM, and Joint exercises to validate the scalability and drive emergent Rapid Global Mobility warfighting concepts and capabilities. Systematic problem-solving at echelon, experimentation to learn and discover, and the rapid transference of knowledge across the enterprise are characteristics of the new organizational paradigm Air Mobility Command is institutionalizing.

Capability development accelerators, such as the Commander's Initiative Group (CIG) and ad hoc headquarters Strike



Figure 2: A DOD contractor, 1st Airlift Squadron communications systems operator, and Air Mobility Command cyber transport systems technician, test a fixed installation satellite antenna (FISA) connection onboard a C-17 Globemaster III on Joint Base Lewis-McChord, Wash., June 5 2020. The FISA was set up to work with a dynamic re-tasking capability (DRC) system, enabling higher connection speeds and more efficient communication between the aircraft and the ground.

Source: U.S. Air Force

Figure 3: An Airman assigned to the 19th Airlift Wing demonstrates how to use the installation's new virtual reality training station at Little Rock Air Force Base, Arkansas, Nov. 5, 2020.

Source: U.S. Air Force



Teams, add teeth to this organizational change. Responsible for driving progress on the command's highest operational challenges, the CIG is a results-driven element on the headquarters staff comprising subordinate cross-functional capability development teams that are laser-focused on accelerating capability realization timelines. Ad hoc Strike Teams, while nascent, are tangible examples of a learning organization. Tactical-level subject matter experts on the design of a new concept or capability are teamed with a flag officer champion, given 30 to 60 days, and granted access to the entire headquarters staff and innovation ecosphere to further develop their idea. If scalable, it will be vectored into a capability development vehicle such as the CIG or Mobility Air Forces Weapons and Tactics Conference to mature.

While cultural and organizational elements to the command's transition to the high-end fight create a supporting and reinforcing environment, Mobility Airmen are the foundational element solidifying this paradigm change. To fight a Joint, all-domain contested battle and deliver Rapid Global Mobility against high-end adversaries in a constantly shifting battlespace, Mobility Airmen must be multi-domain-minded, capable of understanding both the threats they will face as well as how to bring mobility effects to bear across multiple domains.

They must be agile and resilient, capable of assessing and adapting when adversaries challenge initial plans. They must be systems-minded, applying strong analytical and critical thinking skills to assess both adversary and Joint Force mobility system vulnerabilities and limitations. They must be digitally adept, applying increased understanding of the digital landscape to accelerate automation, increase efficiency and effectiveness, advance new warfighting capabilities, and weaponize data for operational effect, as already demonstrated by aircrew pushing code for Mattermost software and maintainers leading the way with Augmented Reality and Virtual Reality (AR/VR) training capabilities. Specialized expeditionary Mobility Airmen must be multi-capable, skilled in multi-disciplinary tasks, and able to operate in smaller force packages to deliver logistics forward or execute integrated combat turns as part of Agile Combat Employment.

Maximizing Full-Spectrum Readiness While Expanding Joint Force Capability and Interoperability

Joint Force success in competition, deterrence, and conflict—and the ability to immediately transition across that continuum—hinges on credible Rapid Global Mobility capacity. To meet this demand—and to continue to provide a Mobility force capable of projecting and sustaining Joint Force combat power in increasingly contested environments—Air Mobility Command is executing a three-pronged approach to maximizing full-spectrum readiness by focusing on people, platforms, and processes.

Maximizing Full-Spectrum Readiness: People

Mobility Airmen are already accelerating readiness for the high-end fight. Aircrew are flying new integrated

Figure 4: Staff Sgt. Mario Balderrama, 921st Contingency Response Squadron force protection journeyman, fires a simulated round while taking cover behind an MRZR all-terrain vehicle during an ambush scenario Oct. 17, 2020, during exercise Green Flag 21-01 at Little Rock Air Force Base, Arkansas.

Source: U.S. Air Force



mission sorties, building proficiencies in wet-wing defueling and hot-pit refueling, and enhancing their ability to operate in advanced Anti-Access and Area Denial (A2/AD) Joint operational environments using connected, synthetic training environments with enhanced threat simulations. Aeromedical Evacuation and Critical Care Air Transport Teams are leveraging invaluable lessons from COVID-19 to increase capability and readiness for global operations in CBRNE environments. Airmen in the contingency response and global en route structure are building enhanced expeditionary skills as they experiment with Agile Combat Employment concepts of operation.

The command is participating in more Joint exercises than before, using them not only to integrate capabilities, but also as milestones in capability experimentation and demonstration campaigns, and to introduce Airmen to new technologies while at the same time building competencies. Previous Advanced Battle Management System (ABMS) capability demonstrations allowed Mobility crews to build awareness of and capability in the emerging Tactical Data Link ecosystem. Beyond Line-of-

Sight (BLOS) and Tactical Data Link, once a niche skillset, is the second language Mobility aircrew must be proficient in to operate in the high-end fight.

Air Mobility Command is infusing high-end training into its premier biennial exercise, Mobility Guardian. First developed in 2017, Mobility Guardian replaced the previous skills competition-based Air Mobility Command Rodeo event with a MAJCOM-level exercise specifically designed to test Mobility Airmen's ability to execute in a high-threat environment. Mobility Guardian 2021—combining over 1,500 Joint and Total Force personnel from across five Air Force MAJCOMs—will test the ability of Mobility aircrew to integrate with fighters, bombers, special operations, and field artillery units to conduct dispersed, all-domain operations in realistic scenarios built around a future, high-end fight. Mobility Guardian 2021 will also include a contested cyber environment, with the command's Cyber Mission Defense Teams fighting against a Red Team simulating adversary cyber capabilities. While international participation in Mobility Guardian exercises will vary, what will

remain consistent is a more realistic threat environment where all participants will have to survive and execute increasingly complex, dynamic, and integrated missions.

The command is leveraging two subordinate echelons to lead full-spectrum readiness training focused on expeditionary operations across the future battlespace. The U.S. Air Force Expeditionary Center—the U.S. Air Force’s preeminent authority for Expeditionary Operations and Rapid Global Mobility training—is returning to its roots as an Expeditionary Warfare Center, transitioning its training programs, curriculum, and focus to building the expeditionary skillsets required across the Air Force for distributed operations against high-end adversaries. The 34th Combat Training Squadron, located at Little Rock Air Force Base, Arkansas, has adjusted focus from its specialization in the tactical integration capabilities applicable to combat operations in the Middle East. Now, using Green Flag Little Rock exercises as the vehicle, the 34th CTS is serving as the command’s venue for emerging Agile Combat Employment concepts and inter-command and inter-service integration training focused on the future battlespace.

Maximizing Full-Spectrum Readiness: Platforms

Full-spectrum readiness across mobility platforms is critical to generating the credible capacity required to meet the increasing Rapid Global Mobility demands of the new joint warfighting concepts and modernized Global Operating Model. To ensure a ready fleet, Air Mobility Command is getting ahead of the reliability and sustainment drag of its aging fleet by leading the Air Force with Conditions-Based Maintenance Plus integration across its weapon systems. Conditions-Based Maintenance Plus—leveraging data, advanced analytics, and predictive analysis to turn reactive, unscheduled maintenance into proactively scheduled maintenance—is a game changer; it is critical to adaptive operations and Agile Combat Employment. Mobility Airmen are also employing the Theory of Constraints to assess maintenance and logistics systems, identify vulnerabilities and choke points, and implement fixes to streamline processes. For example, maintenance teams at Fairchild Air Force Base reduced a 52-day inspection into a synchronized 10-day event and, combined with other process improvements, added 1,500 days of aircraft availability back to the yearly flying schedule, positively affecting aircrew readiness.

Mobility weapon systems must also be resilient, connected, and survivable in order to operate successfully in increasingly contested environments. Mobility aircraft must have the resiliency to withstand a directed electromagnetic disturbance, whether the result of a nuclear explosion or conventional weapon. They must be able to operate in Positioning, Navigation, and Timing (PNT)-degraded environments as well as chemical or biological contaminated areas of operation. Aircraft and crews



Source: U.S. Air Force

Figure 5: U.S. Marines assigned to the 2nd Battalion, 4th Marines, from 1st Marine Division, Camp Pendleton, California, roll out an M142 High Mobility Artillery Rocket System (HIMARS) from a C-17 Globemaster III.

Figure 6: Tech. Sgt. John Rodriguez, 321st Contingency Response Squadron security team, provides security with a Ghost Robotics Vision 60 prototype at a simulated austere base during the Advanced Battle Management System exercise on Nellis Air Force Base, Nev., Sept 1, 2020.

Source: U.S. Air Force



must be connected to the integrated battle network to maintain situational awareness to predict and react to adversary threats. They must also be protected, either through organic means on the aircraft or through defensive capabilities on other aircraft connected through the Advanced Battle Management System network.

The command is also increasing the full-spectrum readiness of its 618th Air Operations Center (AOC) to execute global command and control of mobility weapon systems. Implementing the largest full-scale reorganization in its history, the 618 AOC's realignment in 2020 streamlined functions under new directorates and better aligned itself with geographic AOCs. Executing a DevSecOps approach to capability development, the 618 AOC is building and connecting enhanced and secure Beyond Line-of-Sight communication capabilities and developing data architectures to posture for global transparency and connectivity with worldwide operations centers. In parallel to the standup of ABMS, the 618 AOC—through development, experimentation, and implementation of new planning

applications, such as JIGSAW and Magellan—is driving progress on tangible, incremental, and solvable challenges. Anticipating and already leveraging ABMS expected capabilities, the 618 AOC is mapping its logistics command and control ecosystem, identifying opportunities for automation and streamlined decision making, and it is laying the foundation for more resilient Nuclear Command, Control, and Communication (NC3) capabilities.

Efforts to maximize full-spectrum readiness within the command's Global Air Mobility Support System focus on increasing capacity, responsiveness, maneuverability, and survivability. Current Operation Plans (OPLANs) assume frictionless en route passage, with the command's Air Mobility Operations Wings' (AMOWs) remaining static mobility hubs. Responding to peer adversary threat, AMOW-Next is redesigning the AMOW construct to operationalize untapped capability and increase modularity and maneuverability of its forces. These efforts will allow the AMOWs to augment high-demand contingency response forces and better provide agile logistics capability

across dispersed airfields.

Contingency Response Squadrons are refocusing on the Air Base Opening mission and reforming force and equipment packages into lighter, leaner, and more agile teams. The increased modularity of these teams is essential to expanding capacity to meet growing requirements, increase maneuverability of forward logistics, and enhance survivability by significantly complicating adversary decision making. Maximizing readiness and capacity within our global en route structure is essential to ensuring the ability to provide logistics under attack and Agile Combat Employment.

Maximizing Full-Spectrum Readiness: Processes

To increase full-spectrum readiness for the expected speed and lethality of the high-end, high-tech fight, Air Mobility Command is pursuing logistics information and decision dominance—transitioning away from a legacy pull logistics model to a smarter, faster, more effective, and data-driven push logistics model. Delivering cargo, air refueling, and transporting medical patients across the global en route system are all operations bound by physics and logistics. Without the next propulsion offset, it is impossible to break away from these constraints. To paraphrase Lieutenant General Berry’s discussion on sensing at the speed of relevance, “by consolidating data from a highly connected network of sensors, systems, and organizations...then leveraging artificial intelligence and machine learning through cognitive analytics and visualization tools,” Mobility Airmen will be able to make smarter and faster data-driven decisions left of movement.¹ Information and decision dominance equals comparative advantages over adversaries and faster, more effective Rapid Global Mobility for the Air Force and Joint Force.

Expanding Joint Force Capability and Interoperability

Having the ability to get to the fight, operate, and survive will not be enough to ensure Joint Force success against peer adversaries in a high-end fight. Operational requirements in the new joint warfighting concepts require an increased ability to provide integrated Joint combat power at speed and scale. To maintain relevance, Air Mobility Command—leveraging Advanced Battle Management System technologies on mobility aircraft—will serve as integral nodes in the global mesh network, enabling Combined/Joint All-Domain Command and Control, and provide the core enabling capability of the rapidly approaching digital warfare age: interoperability through connectivity at scale. Maintaining comparative advantages in the ability to push, transport, and access data real-time locally, regionally, and globally, as well as synchronize that data between operations, logistics, fires, and command and control elements will be essential to success against peer adversaries. Providing a resilient and redundant network of pathways for command and control, mobility aircraft will synchronize operations and logistics and expand Joint Force maneuver at pace. Through this network, mobility aircraft will increase battlespace awareness for all Joint Forces, both airborne and on the ground, and potentially gain the ability to provide mass to Joint Force fires through mobility-delivered fires.

Modernization for the Future Battlespace

Extended operations in permissive C-VEO environments created a false sense of security with decreasingly relevant capabilities. Our competitors have studied our weapons systems and can easily target our vulnerable platforms. Modernization is essential to regain warfighting comparative advantages over peer adversaries.

Near-term modernization is driven by rapid exploration to accelerate change. For aircraft, it's harnessing radios already in hand, or the more advanced commercial off the shelf radios available right now and connecting them with nascent Advanced Battle Management System platforms and more capable Beyond Line-of-Sight communication capabilities. For Aeromedical Evacuation, it's identifying where we can develop autonomous care capabilities, such as a closed-loop ventilation system that automatically adjusts how much oxygen is ventilated into a patient based on readings from vital monitors. For our Global Air Mobility Support mission, it's exploring robotics to provide force-multiplying capabilities for Agile Combat Employment teams, advanced radios that can connect to the mesh network, or small unmanned aerial systems that provide protection, situational awareness, and connection.

Mid-term modernization for aircraft delivers mature Advanced Battle Management System capabilities; external pods that provide modular communication, sensing, and self-defense capabilities; and software-defined radios and antennas capable of reprogramming in flight. For Aeromedical Evacuations teams, it's a tablet-based, centralized monitoring capability on the aircraft that connects to a global medical common operating picture to provide real-time patient injury information to receiving medical facilities. For en route Airmen, it's autonomous, self-contained, self-establishing Agile Combat Employment kits that automatically fly to the desired location in autonomous aerial vehicles and, once activated, deploy ground and air sentries.

Future, conceptual modernization develops Rapid Global Mobility capabilities for operations past the new "autonomous

only" battlespace line. C-17s have the new ability to rearm offensive counter-air and defensive counter-air unmanned aerial systems while in flight. Aeromedical Evacuation executes nearly all autonomously, and the term multi-modal now includes space vehicles. While conceptual, the rapid pace of technological advancement shrinks the realization timelines of these capabilities every day. Essential to all modernization is the ability to experiment, rapidly scale emergent capabilities into programs of record, execute dynamic force structure decisions on relevant capabilities, and a capabilities-based budget that allows for the flexible reallocation of spending within major purchase programs. The imperative is clear, and the cost is great. If we fail to build the foundational building blocks for the possible capabilities of tomorrow, we will not be ready.

Conclusion

Air Mobility Command is supplanting its historical label as only an outside enabling force and replacing it with the unshakable understanding that Rapid Global Mobility is essential to Air Force and Joint Force success in competition, deterrence, and conflict. By shifting focus to high-end adversaries, maximizing full-spectrum readiness across its core missions while expanding Joint Force capability and interoperability, and modernizing for the future battlespace, Air Mobility Command is changing not only the way the Joint Force but also how Mobility Airmen view Rapid Global Mobility. Mobility Airmen may fly aircraft from the 1960s, but Air Mobility Command is a modern-day force accelerating to the future—no longer relegated to just enablers when needed but transforming into the capability you must have for Joint Force victory. ★

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Notes

- 1 Warren Berry, *Air Force Persistent Logistics: Sustaining Combat Power during 21st Century Competition and Conflict*, Forum Paper (Arlington, VA: Mitchell Institute for Aerospace Studies, 2020).

About the Author

General Jacqueline D. Van Ovost is Commander, Air Mobility Command, Scott Air Force Base, Illinois. The command serves as U.S. Transportation Command's air component, executing the air mobility mission in support of the joint force, allies and partners with a fleet of nearly 1,100 aircraft. The command encompasses Eighteenth Air Force, the U.S. Air Force Expeditionary Center, the 618th Air Operations Center, and 17 wings and two groups, which provide rapid global mobility from more than 100 locations worldwide. Nearly 107,000 active-duty, Air National Guard, Air Force Reserve Airmen and civilians comprise the air mobility Total Force, providing command and control of inter-theater and intra-theater airlift, air refueling, aeromedical evacuation, global air mobility support, and presidential and senior leader air transport in support of national interests. Gen. Van Ovost has commanded an air refueling squadron, flying training wing and the Presidential Airlift Wing. She also served as the Director of Staff for Headquarters Air Force, Vice Director of the Joint Staff, the Director of Mobility Forces for U.S. Central Command and as the Vice Commander of the U.S. Air Force Expeditionary Center. Gen. Van Ovost graduated from the U.S. Air Force Academy in 1988. She is a graduate of the U.S. Air Force Test Pilot School and a command pilot with more than 4,200 hours in more than 30 aircraft, including the C-32A, C-17A, C-141B, KC-135R and KC-46A. Prior to assuming her current role, Gen. Van Ovost served as the Deputy Commander, Air Mobility Command.

