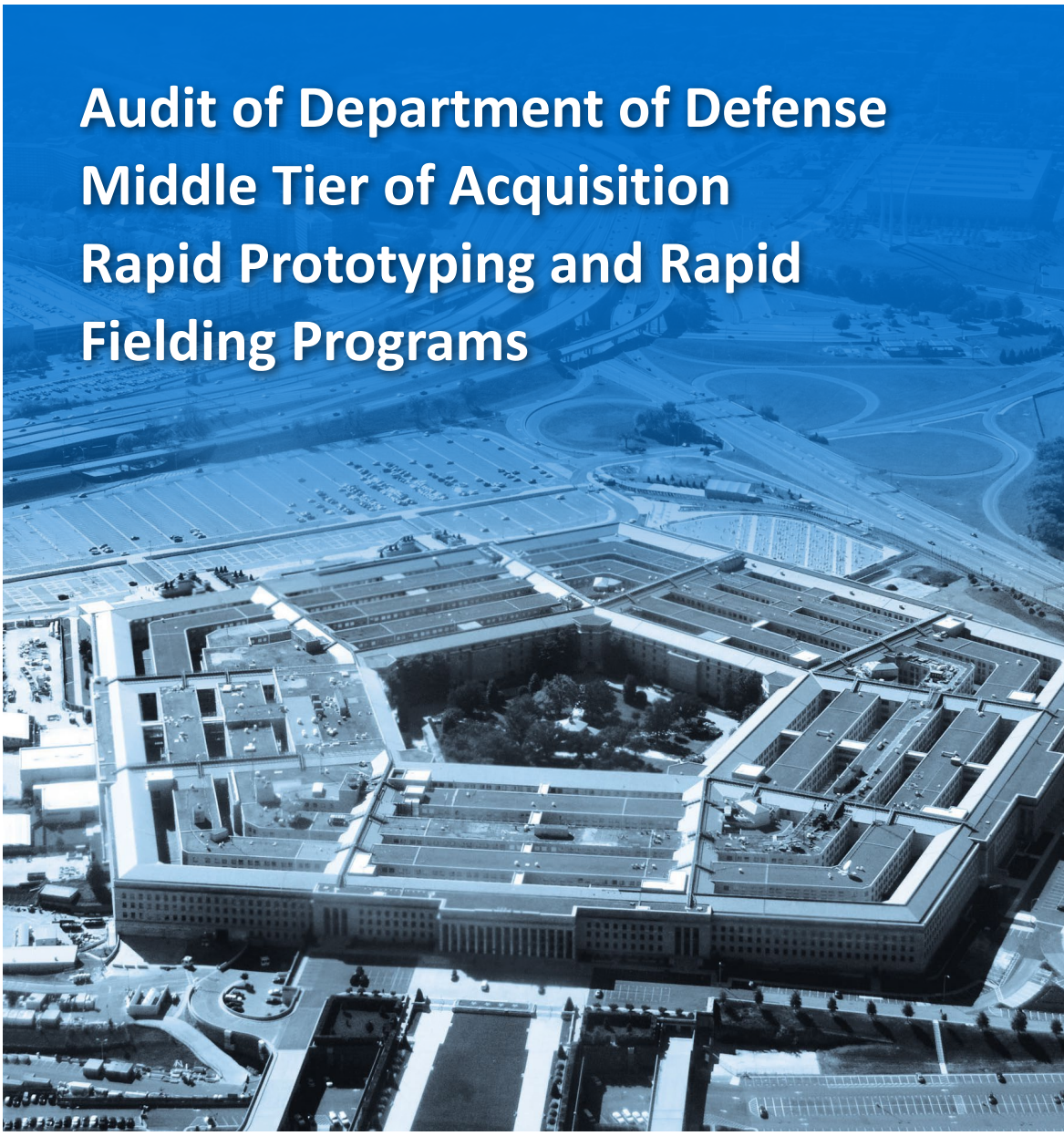
Report No. DODIG-2021-131

INSPECTOR GENERAL

U.S. Department of Defense

SEPTEMBER 28, 2021

Audit of Department of Defense Middle Tier of Acquisition Rapid Prototyping and Rapid Fielding Programs



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Results in Brief

Audit of Department of Defense Middle Tier of Acquisition Rapid Prototyping and Rapid Fielding Programs

September 28, 2021

Objective

The objective of this audit was to determine whether DoD Component acquisition officials managed programs for the middle tier of acquisition (MTA) rapid prototyping or rapid fielding in accordance with DoD guidance.

Background

Section 804 of the National Defense Authorization Act for FY 2016, provides the DoD the authority to rapidly prototype and rapidly field capabilities under a new acquisition pathway and required the DoD to issue implementing guidance. The reforms included an expedited and streamlined alternative acquisition process—referred to as the MTA. The MTA pathway is intended to provide an acquisition pathway to develop and acquire those capabilities mature enough to be rapidly prototyped or fielded within 5 years of starting an MTA program. Specifically, the:

- Rapid Prototyping Pathway uses innovative technologies to rapidly develop fieldable prototypes to demonstrate new capabilities and meet emerging military needs, fields a prototype that can be demonstrated in an operational environment, and provides for a residual operational capability within 5 years of the development of an approved requirement; and
- Rapid Fielding Pathway uses proven technologies to field production quantities of new or upgraded systems with minimal development required, begins production within 6 months, and completes fielding within 5 years of the development of an approved requirement.

Background (cont'd)

The MTA pathways recognize the DoD's need to move faster on promising technologies that are too immature (too early in concept) to declare as an acquisition program but have the ability to provide the DoD significant advantages if they are delivered faster.

DoD guidance establishes policy, assigns responsibilities, and prescribes procedures for the management of the MTA pathways for rapid prototyping and rapid fielding and incorporates MTA requirements addressed in the National Defense Authorization Act.

As of September 30, 2020, DoD Components had 69 active MTA programs (56 rapid prototyping and 13 rapid fielding) with an estimated value of $31.1 billion.

Findings

DoD acquisition personnel effectively leveraged the MTA pathway for 11 programs we reviewed to rapidly develop prototypes and field proven technologies to the warfighter as intended by DoD guidance.

Acquisition personnel effectively leveraged the MTA pathways because DoD Acquisition Executives encouraged and supported the use of the MTA pathways, and Program Executive Offices and Program Managers used the flexibilities provided by the MTA pathways. For example, MTA programs are exempt from traditional acquisition processes and all 11 of the programs that we reviewed tailored acquisition documentation to the unique characteristics and risk profiles of their programs as appropriate.

As a result, DoD programs embraced the shift in acquisition culture and increased the use of MTA pathways. For the programs we reviewed, use of the MTA pathways increased efficiencies and effectiveness by streamlining acquisition processes and expediting prototyping and fielding efforts. Because the MTA programs are still in the early stages of execution and DoD acquisition reform remains a work in progress, the DoD must continue to balance management and oversight of these programs with the risk involved to ensure the efficient delivery of needed, useful, capabilities at a fair and reasonable cost.


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September 28, 2021

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE (ACQUISITION AND SUSTAINMENT)
AUDITOR GENERAL, DEPARTMENT OF THE NAVY
AUDITOR GENERAL, DEPARTMENT OF THE ARMY
AUDITOR GENERAL, DEPARTMENT OF THE AIR FORCE

SUBJECT: Audit of Department of Defense Middle Tier of Acquisition Rapid Prototyping and Rapid Fielding Programs (Report No. DODIG-2021-131)

This final report provides the results of the DoD Office of Inspector General's audit. We considered management's comments on a discussion draft copy of this report when preparing this final report. We did not make any recommendations; therefore, no management comments are required.

If you have any questions or would like to meet to discuss the audit, please contact me at [redacted]. We appreciate the cooperation and assistance received during the audit.

Theresa S. Hull
Assistant Inspector General for Audit
Acquisition, Contracting, and Sustainment

Contents

Introduction

Objective

The objective of this audit was to determine whether the DoD Component acquisition officials managed programs for the middle tier of acquisition (MTA) rapid prototyping or rapid fielding in accordance with DoD guidance.[1]

Background

Section 804 of the National Defense Authorization Act for Fiscal Year 2016 (NDAA) provided DoD the authority to rapidly prototype and rapidly field capabilities under a new acquisition pathway and required the DoD to issue implementing guidance. The reforms included an expedited and streamlined alternative acquisition process—referred to as MTA.[2] The MTA pathway is intended to provide an acquisition pathway to develop and acquire those capabilities mature enough to be rapidly prototyped or fielded within 5 years of starting an MTA program, as explained below.

- Rapid Prototyping Pathway:
  - uses innovative technologies to rapidly develop fieldable prototypes to demonstrate new capabilities and meet emerging military needs, and
  - fields a prototype that can be demonstrated in an operational environment and provides for a residual operational capability within 5 years of the MTA program start date.
- Rapid Fielding Pathway:
  - uses proven technologies to field production quantities of new or upgraded systems with minimal development required, and
  - begins production within 6 months and completes fielding within 5 years of the MTA program start date.

The MTA pathways recognize the DoD's need to move faster on promising technologies that are too immature to declare as an acquisition program but have the ability to provide the DoD significant advantages if they are delivered faster.

The Under Secretary of Defense (Acquisition and Sustainment (USD[A&S]) issued DoD Instruction 5000.80 to establish policy, assign responsibilities, and prescribe procedures for the management of the MTA pathway for rapid prototyping and

[1] A prototype is a model built to evaluate and inform its feasibility or usefulness.

[2] DoD has multiple acquisition approaches available to DoD acquisition personnel that provide opportunities for acquisition personnel to develop acquisition strategies and employ acquisition processes that match the characteristics of the capability being acquired.

rapid fielding, as referenced in the NDAA.[3] Additionally, the DoD Instruction incorporates the definition of the MTA pathways and other requirements addressed in the NDAA. Table 1 shows some of the roles and responsibilities used to manage the MTA pathway and programs.

Table 1. Roles and Responsibilities of DoD Components When Managing a Middle Tier of Acquisition Program

DoD Component	Role or Responsibility
Under Secretary of Defense for Acquisition and Sustainment USD(A&S)	Determines when MTA programs are not appropriate. Advises DoD Components and makes recommendations to Secretary of Defense on use of rapid acquisition authority. Advises decision authorities on MTA programs and works with them to ensure streamlined processes.
Director, Operational Test and Evaluation (DOT&E)	Selects MTA programs for DOT&E operational and live fire test and evaluation oversight. Reviews and coordinates tailored test strategies for operational demonstration plans and assessments for MTA programs designated for DOT&E oversight. Establishes operational demonstration planning and assessment guidelines.
DoD Components with MTA Programs	Oversees their MTA programs through Component Acquisition Executives and program managers. Component Acquisition Executives serve as the decision authority for approved MTA programs, unless delegated. Program managers address risk, develop acquisition strategies, "tailor-in" reviews, assessments, and relevant documentation, execute approved program plans, field capabilities, report program status, and develop and implement sustainment programs.

Source: DoD Instruction 5000.80.

While the NDAA does not restrict use of the MTA pathway based on program cost, the DoD Instruction requires programs exceeding the acquisition category major defense acquisition program (MDAP) threshold to obtain written approval from the USD(A&S) before using the MTA pathway.[4] Additionally, the DoD Instruction requires programs entering the MTA pathways validate the rationale for using the MTA pathway, and the decision authority designates the programs approval to enter

[3] DoD Instruction 5000.80, "Operation of the Middle Tier of Acquisition," December 30, 2019.

[4] An MDAP is an acquisition program that is designated by the USD(A&S), or has an estimated total cost of more than $525 million for research, development, test, and evaluation or $3.065 billion for procurement.

the MTA pathway in an acquisition decision memorandum.[5] The Instruction also requires MTA programs designated prior to the effective date of the Instruction, December 30, 2019, to comply with the requirements of the Instruction. Finally, the DoD Instruction allows program officials to "tailor-in" (identify) relevant information by determining program documentation requirements and how the documentation will be presented to the decision authority for review.

Review of Internal Controls

DoD Instruction 5010.40 requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance that programs are operating as intended and to evaluate the effectiveness of the controls.[6] MTA internal controls over DoD management, oversight, and execution of programs in the MTA pathway were effective as they applied to the audit objectives.

[5] An acquisition decision memorandum documents significant decisions made for an acquisition program. The decision authority has the authority to approve acquisition decisions for a particular program.

[6] DoD Instruction 5010.40, "Managers' Internal Control Program Procedures," May 30, 2013.

Finding

DoD Acquisition Personnel Effectively Leveraged Middle Tier of Acquisition Authorities to Execute More Agile Acquisition Efforts

DoD acquisition personnel effectively leveraged the MTA pathway for all 11 of the programs we reviewed to rapidly develop prototypes and field proven technologies to the warfighter as intended by DoD guidance. Acquisition personnel effectively leveraged the MTA pathways because DoD Acquisition Executives encouraged and supported the use of the MTA pathways, and Program Executive Offices (PEOs) and Program Managers used the flexibilities provided by the MTA pathways. For example, MTA programs are exempt from traditional acquisition processes and all 11 of the programs we reviewed tailored documentation to the unique characteristics and risk profiles of their programs as appropriate.

As a result, DoD programs embraced the shift in acquisition culture and increased use of the MTA pathways. For the programs we reviewed, use of the MTA pathways increased efficiencies and effectiveness by streamlining acquisition processes, and expediting prototyping and fielding efforts. Because the MTA programs are still in the early stages of execution and DoD acquisition reform is still a work in progress, the DoD must continue to balance management and oversight of these programs with the risk involved to ensure the efficient delivery of needed, useful capabilities at a fair and reasonable cost.

DoD Acquisition Personnel Managed the Middle Tier of Acquisition Pathway in Accordance with the DoD Instruction

DoD acquisition personnel effectively leveraged the MTA pathway for all 11 programs we reviewed, to rapidly develop prototypes and field proven technologies to the warfighter as intended by DoD Instruction 5000.80.[7]

As of September 30, 2020, the DoD had 69 active MTA programs, estimated at $31.1 billion and ranging in size from $1.1 million to $7.6 billion.[8] DoD acquisition officials approved 62 programs for the MTA pathway before the effective date of the DoD Instruction, December 30, 2019, and 7 programs after the effective date

[7] The DoD Instruction 5000.80 required MTA programs designated prior to the effective date of the Instruction, December 30, 2019, to comply with the requirements of the Instruction.

[8] We excluded one Air Force MTA program from our universe because it was a classified program.

of the DoD Instruction. Of the 69 MTA programs using the MTA pathway, 56 are rapid prototyping and 13 are rapid fielding. See Appendix B for a listing of the 69 MTA programs as of September 30, 2020, and the programs that we reviewed.

We randomly selected a nonstatistical sample of 11 MTA programs, 5 rapid prototyping and 6 rapid fielding programs. According to the DoD Instruction, the rapid prototyping path provides for the use of innovative technologies to rapidly develop fieldable prototypes to demonstrate new capabilities and meet emerging military needs within 5 years. The rapid fielding path provides for the use of proven technologies to field production quantities of new or upgraded systems with minimal development required, and start production within 6 months and complete within 5 years. We discuss the objectives, costs, schedule, and compliance with entering the MTA pathway for the 11 MTA programs in our review in the following sections.

Army Middle Tier of Acquisition Programs

Next Generation Squad Weapons Program

The Army Acquisition Executive designated the Next Generation Squad Weapons (NGSW) program as an MTA rapid prototyping program in September 2018. The program's purpose is to replace the rifle, automatic rifle, and fire control in the Army's effort to modernize weapon systems. The program has three separate but dependent lines of effort: weapons, fire control, and ammunition; and two separate, full, and open, ongoing competitions:

- prototyping of the NGSW-Rifle, NGSW-Automatic Rifle, and ammunition (which can be fired by both weapon variants), and
- prototyping of the fire control.[9]

Program personnel stated that the program is Soldier-focused with Soldier feedback influencing vendor designs throughout testing. According to the March 2021 monthly acquisition report, the Army awarded three contracts to vendors for rifles, automatic rifles, and ammunition; and two contracts to vendors for fire control. According to the Simplified Acquisition Management Plan, the competitions will be awarded to one vendor for each effort. Program personnel stated that the program office completed technical and usability testing for the fire control and they plan to award the production contract in September 2021. According to program personnel, the program office completed testing of the weapons in the fourth quarter of FY 2021 and the program office plans to award the production contract in early FY 2022.

[9] The Government reserves the right to award follow-on production contracts without further competition.

As of August 2021, the NGSW program was on schedule and within the $231.0 million cost estimate. NGSW program personnel transitioned the fire control effort to an MTA rapid fielding program in July 2021 and plan to transition the weapons and ammunition effort of the program to an MTA rapid fielding program in FY 2022. The program objective and milestones complied with the requirements of entering the MTA pathway, as defined by DoD guidance, for the NGSW program. Figure 1 shows the rifles, ammunition, and fire control systems of the NGSW program.

Figure 1. Candidates of the Next Generation Squad Weapons Program

Source: The Army.

Rapid Opioid Countermeasures System Program

The Army Acquisition Executive designated the Rapid Opioid Countermeasures System program as an MTA rapid prototyping program in October 2018. From an emerging military threat, the Army identified the need for a U.S. Food and Drug Administration–approved therapeutic medical countermeasure capability to treat the effects of operational exposure to opioids.[10] The program supports the development and delivery of naloxone auto-injectors to treat the effects of exposure

[10] Opioids are a class of drugs that includes the illegal drug heroin; synthetic opioids, such as fentanyl; and legally prescribed pain relievers, such as oxycodone, hydrocodone, and morphine.

to opioids by the warfighter and enables the warfighter to move themselves from point of injury to advanced medical care.[11] The program is able to acquire the capability through partnership with commercial industry to enhance an already U.S. Food and Drug Administration–approved auto-injector. The program is expediting the U.S. Food and Drug Administration approval and plans to deliver the prototype auto-injector within 5 years.

The program will provide 4,121 auto-injectors as a residual capability to the Joint Force.[12] The program complied with the requirements of the DoD guidance for entering the MTA rapid prototyping pathway. According to program management personnel, the program will transition directly to sustainment after the prototyping effort. Additionally, the program is ahead of schedule, and prototype delivery is expected in FY 2022 instead of in FY 2023. As of May 2021, the program was within its estimated costs of $34.1 million.

Small Multipurpose Equipment Transport Program

The Army Acquisition Executive designated the Small Multipurpose Equipment Transport program as an MTA rapid fielding program in August 2019. According to the Lifecycle Sustainment Plan, the program's objective is to acquire an affordable, sustainable solution that will carry equipment and supplies and generate enough power to support personnel for 72 hours or 60 miles without resupply. According to the acquisition program baseline, the program represents a materiel solution for high-risk capability gaps associated with excessive physical burdens, recharging batteries during continuous operations, and reducing sustainment burden for semi-independent operations.[13]

According to PEO personnel, the system selected for fielding increased performance by increasing the payload to 2,500 pounds and increased the silent range from 12 to 20 miles. PEO personnel awarded a production contract within 2 months of designation as an MTA program.

The program objective, technology requirements, and milestones, complied with the requirements of the DoD guidance for entering the MTA rapid fielding pathway. As of May 2021, the estimated cost of the program was $157.0 million, which was higher than the original planned cost estimate of $123.4 million. PEO personnel

[11] Auto-injector devices are useful for the rapid administration of drugs and antidotes in emergency situations and in mass casualty management. The auto-injector can be self-administered as a life-saving measure and can also be used by those who have not been medically trained.

[12] The Rapid Opioid Countermeasures System program's, Joint Program Executive Office-Chemical, Biological, Radiological and Nuclear Defense, protects the entire Joint Force-Army, Navy, Air Force, Marines, Coast Guard, and first responders.

[13] The acquisition program baseline is an agreement between the program manager and the milestone decision authority that reflects the approved program and contains schedule, performance, and cost parameters that are the basis for satisfying an identified mission need.

attributed the program's cost differences primarily due to net manufacturing cost increases resulting from a government directed engineering proposal change, which in turn delayed production into FY 2023. The program officer stated that the delivery was on schedule, and according to program identification data, the program is estimated for completion within the 5-year MTA requirement.[14]

Capability Set 21 Integrated Tactical Network Program

The Army Acquisition Executive designated the Capability Set 21 Integrated Tactical Network program as an MTA rapid fielding program on July 9, 2020. According to PEO personnel, the program is a modernization effort that integrates the Army's current program of record tactical applications, services, and communications with new, commercial off-the-shelf network components and transport capabilities for a more flexible, resilient network environment for tactical warfighting. According to the acquisition strategy, the Capability Set 21 Integrated Tactical Network program evolved from the Army's integrated tactical network rapid prototyping effort that focused on the integration of the communications equipment in the field from the brigade through the platoon level.[15]

As of June 2021, the program was within its cost estimate of $176.2 million and the program was on schedule to field nine brigade combat teams by FY 2023. According to Army personnel, communications network technology advances rapidly. To mitigate the risk of technological obsolescence, the Army is fielding capability sets in 2-year increments with each capability set building off of the previous set. According to program personnel, in April 2022, the Army will decide which capability or piece of equipment will be included in future capability sets. According to the program's transition strategy, items not included in future capability sets will transition directly to operations and sustainment.

The Army complied with the requirements of the DoD guidance for entering the MTA rapid fielding pathway through the Capability Set 21 Integrated Tactical Network program's planned use of the residual prototype from the Army's previous integrated tactical network prototyping effort, planned use of commercial off-the-shelf network components, and planned fielding completion within the 5-year MTA requirement.

[14] The DoD Instruction 5000.80 requires that program identification data, which includes program information such as effective date, schedule, budget, and funding sources, is reported in the Defense Acquisition Visibility Environment system for each program.

[15] The acquisition strategy describes the program manager's plan to achieve program execution and programmatic goals across the entire program life cycle.

Navy Middle Tier of Acquisition Programs

Standard Missile-6 Block 1B Phase 1A Program

The Chief of Naval Operations and the Assistant Secretary of the Navy for Research, Development and Acquisition designated the Standard Missile-6 Block 1B Phase 1A as a "Rapid Prototyping, Experimentation Demonstration" program, a precursor to the MTA pathway, in February 2018. The Standard Missile-6 Block 1B Phase 1A program is a prototyping effort to develop a new 21-inch-diameter rocket motor using highly loaded grain fuel technology to extend missile speed and range.[16] Block 1B consists of two phases executed simultaneously: Phase 1A, the MTA prototyping of the new rocket motor, and Phase 1B, the integration with the motor and the rocket vehicle. Our review included only Phase 1A.

Program officials stated that they used the MTA pathway for the Standard Missile-6 Block 1B program to quickly address a surface warfare threat identified by the Office of the Chief of Naval Operations. The MTA pathway allowed the Navy to prototype two phases (Phase 1A and Phase 1B) of the overall Standard Missile-6 program simultaneously, saving time in the overall development of the entire program.

For Phase 1A, program officials stated that the MTA pathway allowed them to use existing technology to prove a new design concept. Program officials described Phase 1A as a short program to determine if introducing highly loaded grain fuel into a rocket motor was feasible. Phase 1B, known as the "All-Up-Round," will integrate the new rocket motor, updated navigation controls, and additional modifications into the Vertical Launch System and Aegis Combat System.

The program objective, technology requirements, and schedule complied with the DoD guidance for entering the MTA rapid prototyping pathway. The Standard-Missile-6 Block 1B Phase 1A successfully completed three demonstrations in 2018 and 2019. A successful final demonstration in December 2019, completed the exit criteria. The Program Executive Officer, Integrated Warfare Systems declared the Standard Missile-6 Block 1B Phase 1A completed in February 2021, 3 years after the MTA started and program costs for Phase 1A totaled $28 million, which was within its planned funding. Following a successful prototyping of Phase 1B, All-Up-Round, the program will proceed to Phase II, using an MTA rapid fielding pathway. Figure 2 shows the Standard Missile-6.

[16] Highly loaded grain technologies enable the "end-burning" of the solid propellant, which will allow for higher volume loading of propellant within the rocket motor.

Figure 2. Standard Missile-6
Source: The Navy.

Next Generation Naval Mission Planning System Program

The Program Executive Officer for Unmanned Aviation and Strike Weapons designated the Next Generation Naval Mission Planning System program as an MTA rapid prototyping program on September, 2019. According to the acquisition decision memorandum and program identification data, the program will:

- prototype a mission planning capability with improvements to usability,
- reduce planning time,
- advance cyber resiliency,
- implement advanced collaborative planning and execution across a family of platforms and weapons for Naval aviation, and
- replace the current Joint Mission Planning System.

Program officials stated that the program was primarily a software effort, and the MTA pathway allowed them to quickly execute the software development model using existing architecture. They also stated that the program was intended to deliver improved mission planning capability to the warfighter in a shorter cycle.

As of March 28, 2021, program documentation supported that the Next Generation Naval Mission Planning System program was on schedule, with an operational demonstration planned in 2021, and completion scheduled in June 2024. Based on the Next Generation Naval Mission Planning Systems' mission need, planned use of existing architecture, and expedited milestones, the program complied with the requirements of the DoD guidance for entering the MTA rapid prototyping pathway. As of June 2021 the program reported costs of $218 million, which was higher than its original estimated costs of $213 million.

Marine Corps Wideband Satellite Expeditionary Program

The Marine Corps Systems Command Commander designated the Marine Corps Wideband Satellite Expeditionary program as an MTA rapid fielding program in February 2020. According to the acquisition plan, the program will field a packable, multiband high frequency and multi-wave form satellite communications terminals that can be transported by one Marine and set up in under 15 minutes. According to the acquisition plan, the program is one of four systems in a family of systems that combines commercial off-the-shelf and DoD hardware, and the program is capable of operating with commercial and military satellite constellations. The program will procure the latest mature and supported technology and will focus on a reduction of size, weight, and power from legacy equipment.

Program personnel originally estimated costs for the Marine Corps Wideband Satellite Expeditionary program as $30 million based on vendor responses to a Government request for information and stated that its revised estimates were $20.6 million, which reflected reduced unit costs based on vendor responses to the Government Request for Proposal solicitation. According to program personnel, fielding began in August 2021 with an estimated completion of fielding in June 2022. Program officials stated that when rapid fielding is complete, the program will transition to sustainment. Based on the Marine Corps Wideband Satellite Expeditionary program's mission need, planned use of commercial off-the-shelf and existing DoD hardware, and expedited milestones, the program complied with the requirements of the DoD guidance for entering the MTA rapid fielding program.

Submarine–Launched, Unmanned Aerial System Program

The Program Executive Officer, Submarines designated the Submarine-Launched Unmanned Aerial System program as an MTA rapid fielding program in May 2019. According to program identification strategy, the program will field a 3-inch-diameter unmanned aerial vehicle that extends submarine

surveillance range by enabling the launch, command and control of the vehicle. The program will also design and deliver a radio to enable communication between the submarine and the unmanned aerial vehicle and a control and user interface, which fully integrates with the current submarine combat system, by December 2023. Program officials stated that they selected the MTA pathway because it was considered to be a low-risk and because the Navy leveraged previous research programs and other testing events. The Navy also considered the program a high-priority need because the program will provide key technology with the ability to launch and control an unmanned aerial vehicle, which can be used for anti-surface warfare and intelligence, surveillance, and reconnaissance support operated from submarines.

Based on the Submarine-Launched Unmanned Aerial System program's high priority need and expedited milestones, the program complied with the DoD guidance for entering the MTA rapid fielding program. As of August 2021, the program fielded equipment to the submarine fleet and plans to install a total of 15 shipsets before the program completion in August 2023. Final costs were estimated at $32 million and as February 2021, were below original estimates.[17] Program officials stated that the cost decreased due to the competition of another unmanned aerial vehicle.

Air Force Middle Tier of Acquisition Programs

F-15EX Program

The Assistant Secretary of the Air Force (Acquisition, Technology, & Logistics) designated the F-15EX, shown in Figure 3, as an MTA rapid fielding program in September 2019 to expedite replacement of the aging fleet of F-15C/D aircraft. The rapid fielding requirement document stated that the F-15 fleet was in dire need of a refresh, in particular the F-15C/D fleet, which without an expensive service life extension would exceed the limit of its airframe flying hours in 2023-2027. The Air Force stated in its response to the FY 2020 Appropriations Act Explanatory Statement, that procuring the F-15EX was the most expedient, cost-effective solution to overcoming the F-15C/D availability crisis and improving fighter force capacity.

Program personnel stated that by declaring the F-15EX program as an MTA program, the Air Force "sent a message" to the defense industrial base that the DoD was committed to using the accelerated pathway. According to the September 2019 acquisition strategy, the program planned to use proven technologies to field production quantities of new or upgraded systems, begin production within

[17] Each shipset consists of 6-12 unmanned aerial vehicles and associated shipboard components.

6 months, and complete fielding within 5 years by September 2024. Therefore, the program complied with the requirements of the DoD guidance for entering the MTA rapid fielding pathway.

The F-15EX program leveraged the existing F-15QA configurations developed for sale to Qatar under the DoD's Foreign Military Sales program, and the contractor realigned F-15QA airframes to the F-15EX program and will make minor modifications, such as installing a U.S.-only electronic system. The acquisition strategy stated that the Air Force planned to procure 144 aircraft over eight lots (installments): the first two lots through the MTA pathway and the remaining lots through a traditional acquisition pathway. In order to accelerate the replacement of F-15C/D aircraft, initial testing and manufacturing will take place in the MTA pathway and full rate production will take place after the program transitions to a MDAP; expected to occur during the 3rd Quarter of FY 2022. The two lots in the MTA pathway consist of:

- 2 initial test aircraft (Lot 1A),
- 6 additional test aircraft (Lot 1B), and
- 12 aircraft that comprise the first squadron (Lot 2).

Air Force personnel stated that the two test aircraft in Lot 1A were delivered on March 11, 2021, and April 20, 2021; both were delivered ahead of schedule. Lot 1B is scheduled for delivery in FY 2023 and Lot 2 is scheduled for delivery in FY 2024.

As of July 2021, the cost of the MTA portion of the program was estimated at $2.7 billion. The program established cost and schedule guardrails, which are thresholds that trigger a notice to (or review by) the milestone decision authority. In May 2021, PEO personnel reported through the monthly acquisition report that MTA program costs were within the guardrails.[18] Figure 3 shows the F-15EX.

Figure 3. F-15EX
Source: The Air Force.

[18] Program personnel send monthly acquisition reports to the PEO for review and include a program assessment; top issues facing the program; funding execution data; and cost, schedule, performance, and contract information.

Counter-Small Unmanned Aerial Systems Phase 0 Program

The Air Force's PEO Digital designated the Counter-Small Unmanned Aerial Systems, Phase 0 program as an MTA Rapid Fielding program in August 2019. The program's acquisition strategy states that program is part of a multi-phased approach that will deliver system capabilities and upgrades to the system through FY 2028. The Air Force prioritized a list of bases for installation of the systems and Phase 0, the MTA program selected for review, and will field counter-small unmanned aerial systems to a minimum of 30 installations by September 2024.

According to program personnel, the MTA pathway was selected because the system did not need additional prototyping, and was ready to be fielded quickly. The program complied with the requirements of the DoD guidance for entering the MTA rapid fielding pathway. The acquisition strategy estimated that under the MTA pathway, the capability could be fielded as early as October 2019 rather than July 2020. The capability was first fielded in April 2020, which was 3 months earlier than the estimated traditional acquisition pathway timeframe.

Program personnel stated that as of July 1, 2021, the program was on schedule to complete system installations at 33 bases by the end of calendar year 2021 and that they would continue to seek funding for additional Air Force bases through the end of the 5-year MTA time period. The estimated cost to field the system to 30 bases was $20.0 million, and, as of July 2021, the estimated cost to field the system to 33 bases was $23.6 million. Costs increased from the original estimate because three bases were added, but program personnel stated that the contractor projects cost reductions as more systems are fielded.

E-3 AWACS Communication Network Upgrade Program

The Air Force's PEO Digital designated the E-3 Airborne Warning and Control System Communication Network Upgrade program as an MTA rapid prototyping program in October 2018. According to the program's strategic plan, the purpose of the program was to meet the Federal Aviation Administration frequency mandate (January 2025) and the National Security Agency cryptographic modernization mandate (January 2022). Program personnel stated that failure to meet the January 2022 deadline would render AWACS aircraft unable to fully access the Link 16 network, which would reduce combat support capabilities.[19] To meet the January 2022 cryptographic modernization deadline, the program is installing the required capability to multiple aircraft before completing testing on an initial prototype. Program personnel stated that if the initial prototype

[19] The Link 16 network is a jam-resistant, line-of-sight tactical data and voice communication system used by several Services, and facilitates communication between other aircraft and ground forces. Link 16 also allows for images and real-time video to pass among users.

failed testing, multiple aircraft would require retrofitting. According to program personnel using the MTA pathway allowed program personnel to accept the risk of retrofitting aircraft to meet a cryptographic modernization mandate so that combat support capabilities would not be reduced. Program personnel stated that this type of risk would not have been accepted if the program used the traditional acquisition pathway.

The program's acquisition strategy stated that the rapid prototyping approach anticipated schedule savings of 1 year and would enable the program to modify multiple aircraft before the cryptographic modernization requirements became effective whereas a traditional acquisition approach would yield zero aircraft by the mandated date. Program personnel planned the program to deliver three incremental capability packages, and the last capability was originally scheduled to complete fielding after the 5-year MTA requirement. We discussed our concerns about completing the project outside the MTA requirement, and program personnel stated that they plan on transitioning each capability package to a new rapid fielding MTA program once its prototyping is complete. The program would then complete fielding of the capabilities within the 5-year requirement for the new rapid fielding MTA programs. The program held a milestone decision authority review of the program's readiness to field the first capability package and approved the transition plan in August 2021. Based on planned corrective actions by program personnel, we did not make any recommendations.

In June 2021, program personnel estimated that they would complete the installation of capabilities needed to meet the cryptographic modernization mandate on six aircraft by the January 2022 deadline. Finally, the estimated costs of the program decreased from $213.7 million to $188.8 million. Program personnel stated that the estimated costs of developing one of the capabilities packages was reduced.

In summary, each of the programs that we reviewed effectively leveraged the MTA pathway to rapidly develop prototypes and field proven technologies to the warfighter.

In summary, each of the programs that we reviewed effectively leveraged the MTA pathway to rapidly develop prototypes and field proven technologies to the warfighter. Additionally, each program complied with the requirements of entering the MTA pathways, as defined by DoD guidance.

DoD Acquisition Executives Encouraged and Supported the Middle Tier of Acquisition Pathway

DoD acquisition personnel effectively leveraged the MTA pathway because DoD Acquisition Executives encouraged and supported the use of the MTA pathways to expedite prototyping and fielding efforts. Before the USD(A&S) issued the DoD Instruction on MTA pathways, the USD(A&S) and each of the Component Acquisition Executives promoted the use of the MTA pathways through guidance and other Service communications.

The USD(A&S) issued interim guidance in April 2018 to authorize the use of the MTA pathway for DoD Components and solicit Component feedback. The interim guidance encouraged DoD Components to immediately further implement the NDAA by developing rapid prototype and fielding processes and procedures. The interim guidance described a collaborative policy development effort, allowing DoD Components to provide input into policy and guidance for implementing the NDAA based on their prototype process and procedures, analysis, and lessons learned.

With the interim USD(A&S) guidance authorizing use of rapid acquisition tools, the Services also encouraged use of the new authorities as the standard, not the exception. For example:

- During testimony to the House Armed Services Committee in 2018, the Army Acquisition Executive explained that the current acquisition system was not appropriate to achieve modernization, describing it as "linear" and "closed" with "unacceptably long timelines." Accordingly, the Army encouraged use of the MTA pathway in its "2019 Army Modernization Strategy" and Army leadership encouraged a "culture of innovation" by using adaptive acquisition approaches that leverage the full scope of congressional authorities, such as MTA, to accelerate development, production, and delivery of materiel capabilities. The Army acknowledges that not all first demonstration and experimentation of every system will succeed, but, that the Army will learn and adjust programs and concepts rapidly.
- On April 24, 2018 the Assistant Secretary of the Navy (Research, Development and Acquisition) issued the "Middle Tier Acquisition and Acquisition Agility Guidance," establishing that its organizations will implement a series of pilot programs to exercise authorities and inform policy development. Additionally, on January 10, 2019, the Assistant

Secretary of the Navy (Research, Development, and Acquisition) issued the "Middle Tier Acquisition and Acquisition Agility Interim Guidance Update," establishing that its organizations should use all rapid acquisition tools as a standard part of business rather than the exception.

- On June 27, 2019, the Assistant Secretary of the Air Force (Acquisition, Technology and Logistics) issued the "Air Force Guidance Memorandum for Rapid Acquisitions Activities." In the memorandum, the Assistant Secretary characterized using the authorities for rapid prototyping and fielding in the NDAA as freeing. Additionally, he stated:

> The authorities addressed in this Air Force Guidance Memorandum put both the reins of programs as well as our reputation in our hands: be dismissive of things that do not matter but very disciplined on things that do. I encourage you to make rapid acquisition our new Air Force standard, not an occasionally used exception. Speed awaits!

The DoD also issued the DoD 5000 Series Acquisition Policy Transformation Handbook, which states that as champions of the new adaptive acquisition framework effort, which includes the MTA pathway, support from acquisition personnel is vital.[20] Furthermore the Handbook states that for successful implementation of the revised DoD 5000 Policy, the Department needs the DoD acquisition community's help to actively embrace and promote this culture change.

We also found that acquisition personnel across the Services encouraged and embraced the use of MTA pathways. Personnel from the Counter-Small Unmanned Aerial Systems Phase 0 program office stated that they became aware of the MTA pathway because of the PEO encouraging innovation and creativity to find the right solution to each challenge, and to find ways to speed up the acquisition process. They ultimately selected the MTA because the capability was already mature and could complete fielding within the 5-year MTA time period.

Additionally, F-15EX program personnel stated that when developing the acquisition strategy for the program, they reviewed all acquisition pathways available to the program. They stated the MTA pathway was becoming more common at the time of program initiation and they believed that the F-15EX program was an excellent fit for the MTA pathway because there was a straightforward requirement, an existing production line, and ongoing development of new capabilities.

[20] DoD 5000 Series Acquisition Policy Transformation Handbook, "Multiple Pathways for Tailored Solutions," January 15, 2020.

With Congress authorizing the new MTA pathways and encouragement from various levels within DoD, acquisition personnel embraced the shift in acquisition culture, and leveraged and increased use of the MTA pathways.

Acquisition personnel embraced the shift in acquisition culture, and leveraged and increased use of the MTA pathways.

Delegation of Decision Authority in Middle Tier of Acquisition Programs

DoD Instruction 5000.80 designated the Component Acquisition Executives as the decision authority for MTA programs and allows the Component Acquisition Executives to delegate further the level of oversight.[21] Table 2 lists the MTA decision authority or delegated authority as stated in Service guidance.

Table 2. Middle Tier of Acquisition Decision Authority or Delegated Authority as Identified in Service Guidance

Service	MTA Decision Authority
Army	Assistant Secretary of the Army (Acquisition, Logistics, and Technology)
Navy	Commanders of Systems Commands, PEO, or Direct Reporting Program Managers Assistant Secretary of the Navy (Research, Development and Acquisition) retains decision authority for prospective MTAs and programs that do not meet the criteria for designation by a commander of a Systems Command, PEO, or direct reporting program manager.
Air Force	Assistant Secretary of the Air Force (Acquisition, Technology and Logistics) (programs exceeding the MDAP threshold) PEOs (programs below the major defense acquisition threshold) with further delegation allowed

Source: The DoD OIG.

For the 11 programs we reviewed, the Component Acquisition Executives generally delegated MTA decision authority and additional authorities to the program offices, and the decision authorities designated the programs approval to enter the MTA pathway in an acquisition decision memorandum for all 11 programs. Table 3 lists the decision authority and delegation for each MTA program we reviewed.

[21] Component Acquisition Executives are responsible for all acquisition functions within their Components. They are the Secretaries of the military departments or heads of agencies with the power of re-delegation. In the military departments, the officials delegated as Component Acquisition Executives or Service Acquisition Executives are respectively, the Assistant Secretary of the Army for Acquisition, Logistics, and Technology; the Assistant Secretary of the Navy for Research, Development and Acquisition; and the Assistant Secretary of the Air Force for Acquisition.

Table 3. Decision Authority and Delegated Authority of Sampled MTA Programs

MTA Program	Decision Authority	Delegated Authority
Capability Set 21 Integrated Tactical Network	Assistant Secretary of the Army (Acquisition, Logistics, and Technology)	PEO Command, Control, and Communications-Tactical delegated as the decision authority; PEO Soldier delegated to procure equipment
Next Generation Squad Weapons	Assistant Secretary of the Army (Acquisition, Logistics, and Technology)	PEO Soldier designated as the decision authority
Rapid Opioid Countermeasures System	Assistant Secretary of the Army (Acquisition, Logistics, and Technology)	Joint PEO, Chemical, and Biological Radiological, and Nuclear Defense designated as the decision authority
Small Multipurpose Equipment Transport	Assistant Secretary of the Army (Acquisition, Logistics, and Technology)	PEO Combat Support and Combat Service Support as the decision authority
Next Generation Naval Mission Planning System	PEO Unmanned Aviation and Strike Weapons	Not further delegated
Standard Missile-6 Block 1B Phase 1A	PEO Integrated Warfare Systems	Not further delegated
Submarine-Launched Unmanned Aerial System	PEO Submarine	Not further delegated
Marine Corps Wideband Satellite Expeditionary	Marine Corps Systems Command	Decision authority for Request for Quotation and fielding delegated to the portfolio manager
Counter-Small Unmanned Aerial Systems Phase 0	PEO Digital	PEO Digital retained milestone decision authority Purchases of additional systems delegated to Division Chief
E-3 AWACS Communication Network Upgrade	PEO Digital	Milestone decision authority delegated to Branch Chief, E-3 Operational Capabilities
F-15EX	Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics)	Assistant Secretary of the Air Force (Acquisition, Technology, and Logistics) retained milestone decision authority Training systems contract award delegated to Air Force Lifecycle Management Center Engine and simulator contract award delegated to PEO Fighter/Bomber

Source: The DoD OIG.

Program personnel for the Capability Set 21 Integrated Tactical Network program stated that the delegation to the PEO made the process more efficient because the PEO had latitude in making decisions and could tailor a program's milestones, documentation, and schedules to the risk and needs of the programs. For the Marine Corps Wideband Satellite Expeditionary program, the Marine Corps Systems Command Commander designated the program for the MTA pathway, and the Commander further delegated decision authority for two milestones to the portfolio manager. Program personnel stated it was effective having the portfolio manager as the decision authority because he was able to address questions and concerns quickly.

Although the Component Acquisition Executive retained decision authority for the F-15EX program, program personnel stated that the decision authority delegated contracting authority for smaller dollar value contracts, in relation to the entire program, such as engines and training simulators down to lower levels. Program personnel stated that this placed the decision making authority where it was best used and enabled the program to start competition for engines more rapidly.

Streamlined and simplified approvals allow stakeholders to focus attention on specific program needs, without sacrificing rigor and discipline. For the programs we reviewed, DoD Acquisition Executives encouraged and supported the use of the MTA pathways by allowing the Components to manage oversight of their MTA programs' streamlined acquisition processes and expedited prototyping and fielding efforts.

Streamlined and simplified approvals allow stakeholders to focus attention on specific program needs, without sacrificing rigor and discipline.

DoD and Services Maintained Oversight of Middle Tier of Acquisition Programs

While the PEOs and the DoD Components generally maintained oversight of the MTAs within their component, some oversight was retained at the DoD level. For example, the USD(A&S) approves use of the MTA pathway for programs that exceed MDAP thresholds. The USD(A&S) also chairs an advisory board to evaluate requests to use MTA authority for programs exceeding the MDAP level thresholds.[22] Additionally, the USD(A&S) establishes MTA policy and retains the right to determine if a program is not appropriate for the MTA pathway. The Director of Cost Assessment and Program Evaluation establishes policies and procedures for

[22] The advisory board includes the Component Acquisition Executives, the Vice Chairman of the Joint Chiefs of Staff, the Under Secretary for Defense (Research & Engineering), the Director of Cost Assessment and Program Evaluation, the DOT&E, and the Under Secretary of Defense, Comptroller/Chief Financial Officer, DoD.

MTA costs estimates and the office of the Vice Chairman of the Joint Chiefs of Staff advises DoD Components of interoperability across the joint force, cybersecurity of military networks, and alignment with DoD future warfighting concepts.

Furthermore, DOT&E places MTA programs on their test and evaluation oversight list by using the same criteria as they do for traditional acquisition programs; the potential to exceed the major defense acquisition threshold, a high level of congressional or DoD interest, and the result enables a critical warfighting capability or is militarily significant change to a weapon system. For example, DOT&E personnel stated the Standard Missile-6 Block 1B program was added to the list because the parent program, the Standard Missle-6, is an ACAT I program. As of September 30, 2020, there were 18 of 69 MTA programs on the test and evaluation oversight list. Additionally, 3 of the 11 programs that we reviewed, NGSW, F-15EX, and Standard Missile-6 Block 1B were under DOT&E oversight.

Component Acquisition Executives and their respective offices provided oversight and support to MTA programs even when the decision authority was delegated to lower levels. For example, personnel from the office of the Assistant Secretary of the Navy for Research, Development and Acquisitions stated that they work with PEOs to assess the adequacy and appropriateness of program requirements to support the MTA approach. Likewise, personnel from the office of the Assistant Secretary of the Air Force for Acquisition Integration stated that they work with program managers to ensure the acquisition strategy meets all of the statutory requirements. Finally, although MTA decision authority may be retained by the Component Acquisition Executive for the Army, personnel from the office of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology stated that they regularly work with program managers to develop the MTA "shaping brief" for the Deputy for Acquisition and Systems Management. The purpose of the shaping brief is to present the MTA program plan to the deputy, obtain the deputy's feedback, and revise the brief before presenting to the Component Executive for MTA pathway approval.

Middle Tier of Acquisition Reporting Requirements Enabled Oversight

PROGRAM REPORTING REQUIREMENTS

The USD(A&S) further enabled DoD oversight by establishing MTA program reporting requirements in the DoD Instruction 5000.80. Before the Instruction, MTA information was disparate and not consolidated in one DoD information

system. The Instruction now requires MTA programs to upload specific documents through the Defense Acquisition Visibility Environment interfaces to enable access for acquisition officials. Major programs are required to provide a signed acquisition decision memorandum, an approved requirement, an acquisition strategy, a cost estimate, and, for fielding programs, a lifecycle sustainment plan.[23] Non-major programs are required to upload a signed acquisition decision memorandum approving the MTA pathway.[24]

We found all 11 of the programs we reviewed complied with the DoD Instruction 5000.80 reporting requirements. Additionally, we found that some programs provided more than the required program documentation in the Defense Acquisition Visibility Environment system. Overall, oversight improved with the availability and consolidation of MTA program data within the Defense Acquisition Visibility Environment.

Overall, oversight improved with the availability and consolidation of MTA program data within the Defense Acquisition Visibility Environment.

CONGRESSIONAL REPORTING

The USD(A&S), in coordination with the DoD Component Acquisition Executives, provided Congress with detailed information on MTA programs. The joint explanatory statement to the NDAA instructs the USD(A&S) to notify congressional defense committees within 30 days of a decision to designate a program to use the MTA pathway. In its September 2020 notification, the USD(A&S) identified four programs recently approved for the MTA pathway and also provided a comprehensive list of MTA programs with basic information including the lead component, name of the program, whether the program is major or non-major effort, and the program's prototyping or fielding designation.

In summary, DoD Acquisition Executives encouraged and supported the use of the MTA pathways, empowered Components to manage oversight and delegate decision authority, and improved MTA reporting, allowing acquisition personnel to embrace the shift in acquisition culture and leverage and increase use of the MTA pathways.

[23] Major programs are defined as programs above that will require an eventual total expenditure for research, development, and test and evaluation of more than $200 million or for procurement of more than $920 million.

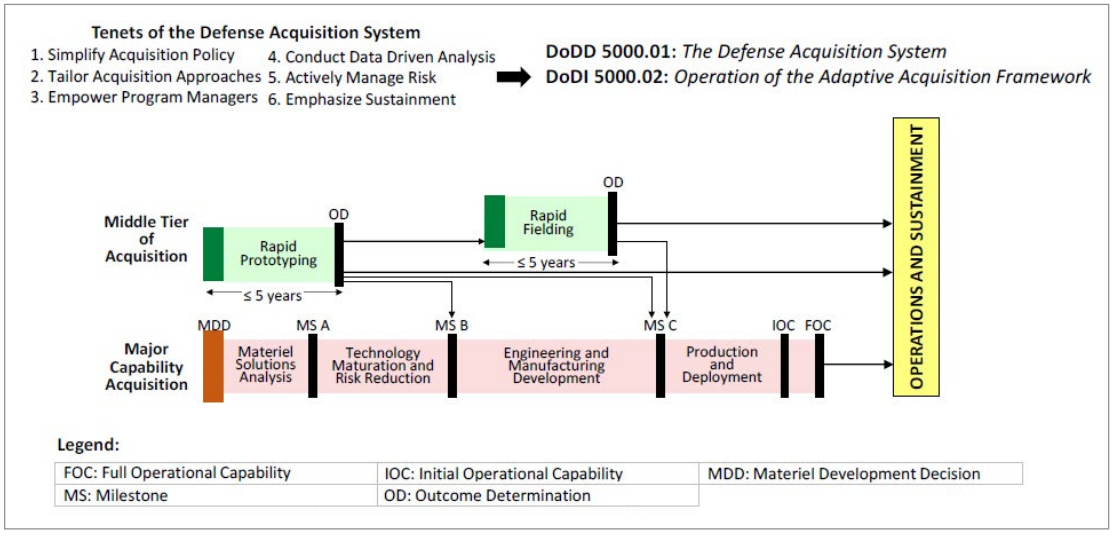
[24] Non-major programs are defined as programs that are below the major program threshold.

Program Executive Offices and Program Managers Used the Flexibilities Provided by the Middle Tier of Acquisition Pathway

DoD acquisition personnel effectively leveraged the MTA pathway because PEOs and program personnel used the flexibilities provided by the MTA pathway. Specifically, MTA programs are exempt from traditional acquisition processes and all 11 of the programs that we reviewed tailored documentation to the unique characteristics and risk profiles of their programs as appropriate.

DoD Instruction 5000.80 states that MTA programs are exempt from the DoD's traditional acquisition and requirements development policies. The MTA pathway allows for programs to be exempted from the acquisition and requirements processes defined by DoD Directive 5000.01 and Chairman of the Joint Chiefs of Staff Instruction 5123.01H, which outline processes to implement DoD's traditional requirements process, specifically the Joint Capabilities Integration and Development System process.[25] Program officials stated that the process of coordinating requirements with the joint community could take several years. In contrast, according to program officials, the MTA requirements process may only take a few months primarily because the decision authority resides within the service rather than outside the service with the joint community. Figure 4 illustrates the differences between an MTA and a major capability acquisition.

Figure 4. Middle Tier of Acquisition Compared to Major Capability Acquisition



Source: The DoD OIG.

[25] DoD Directive 5000.01, "The Defense Acquisition System," September 9, 2020, and Chairman of the Joint Chiefs of Staff Instruction 5123.01H, "Charter of the Joint Requirements Oversight Council (JROC) and Implementation of the Joint Capabilities Integration and Development System (JCIDS)," August 31, 2018.
The requirements process assesses existing and proposed capabilities in light of their contribution to future joint concepts and warfighting needs.

Additionally, MTA policy has tiered thresholds for data reporting to reduce burden on smaller program offices, and the USD(A&S) stated that smaller, agile MTA programs had the potential to accept more risk and accelerate innovation compared to larger, traditional programs. The tiered thresholds allows programs to focus on delivering capability rather than generating documents and reports required for increased oversight. Furthermore, MTA programs incorporate principles of the Defense Acquisition System; however, MTA programs are streamlined with less required documentation and can tailor that documentation to the unique characteristics and risk profiles of their programs.

Likewise, DoD Instruction 5000.80 provides that the acquisition pathway must be tailored to the unique characteristics and risk profile of the capability being acquired. It further instructs program managers to "tailor-in" reviews, assessments and relevant documentation to customize acquisition strategies to the "unique characteristics and risks of their program." The Instruction requires program managers to identify and reduce operational, technical, and security risks so that the fielded systems are "capable, effective, and resilient." During the USD(A&S) adaptive acquisition framework-training event, September 2019, the USD(A&S) emphasized that the adaptive acquisition framework policy, which included the MTA pathway, enabling and encouraging program managers to take and actively manage risk. According to DoD Instruction 5000.80 and DoD Instruction 5000.02, management principles and oversight will be tailored based on the risk profile and capability being developed.

Finally, the Defense Acquisition University explained that tailoring acquisition documentation allowed program officials to minimize the time it required to satisfy an identified requirement consistent with common sense, sound business management practice, and applicable laws and regulations. Each of the programs that we reviewed tailored documentation to streamline and expedite their acquisitions. Table 4 shows examples of actions the MTA programs used and an estimate of the time saved by using the MTA pathways, according to program personnel.

Table 4. Examples of Estimated Time Saved by Using the MTA Pathway

Program	Action	Estimated Time Savings Using the MTA Pathway (in Months)
Counter-Small Unmanned Aerial Systems Phase 0	Developed a rapid fielding requirements document instead of going through the Joint Capability Integration and Development System process.	6
	Used acquisition strategy PowerPoint slides as an acquisition plan and used guardrails, (thresholds that trigger a notice to, or review by, the milestone decision authority) for the program and PEO to monitor instead of creating an acquisition program baseline.	5
Capability Set 21 Integrated Tactical Network	Tailored documentation such as the test and evaluation strategy, acquisition baseline, abbreviated capability development document, and sustainment strategy. Tailoring reduced the amount of required documents from approximately 38-42 documents to 10.	6-12
F-15EX	Developed a rapid fielding requirements document instead of going through the Joint Capability Integration and Development System process.	24
	Tailored documentation such as the program strategy document which combines statutory and regulatory documentation requirements into a single concise document.	6
	Accelerated production by contractor.	12
Next Generation Squad Weapons	Used a simplified requirements document and Army approval.	24-36
Marine Corps Wideband Satellite Expeditionary	Used non-developmental mature commercial off-the-shelf technology instead of developing technology through a traditional Defense Acquisition Systems program.	12
Rapid Opioid Countermeasures System	Used a modified capability development document instead of going through the Joint Capability Integration and Development System process.	12

Source: The DoD OIG.

For example, F15-EX program personnel stated that the major benefit of using the MTA pathway was the ability to tailor a program and reduce the amount of documentation. The program created a program strategy document that combined legal and regulatory documentation requirements into a single concise document. Its intent was to eliminate redundancy between acquisition planning documents and streamline the documentation coordination and approval processes. Additionally, F-15EX program personnel stated that had the Air Force pursued

the traditional pathway to address the immediate need instead of the MTA pathway, the contractor likely would not have made pre-contract investments to accelerate initial aircraft deliveries. Overall, program personnel estimated that using the MTA pathway instead of using the traditional pathway would save 3.5 years due to using a rapid fielding requirement document, tailoring documentation, and leveraging an existing airframe to accelerate production.

Using the MTA pathway instead of using the traditional pathway would save 3.5 years.

NGSW program office personnel also leveraged flexibilities provided by the MTA pathway. For example, the NGSW product manager estimated that using the MTA pathway saved the team between 2 and 3 years on requirement approvals. Additionally, NGSW program personnel stated they typically made trade-offs between performance attributes to meet cost, schedule, and technical constraints and making trade-offs were difficult in the traditional acquisition pathway. However, by using the MTA pathway and tailoring documentation, the program office used the Soldier Lethality Initial Capability Document as the program's baseline and then built upon it a tiered capability matrix instead of the lengthy and difficult individual capability development document per item which required formal revalidations if changes are needed. The MTA pathway allowed the program office to use the initial capability development document for prototyping multiple lines of efforts instead of creating a capability development document for each effort.[26]

The NGSW product manager estimated that using the MTA pathway saved the team between 2 and 3 years on requirement approvals.

As a result of the encouragement and emphasis of the MTA pathways and the flexibility in the MTA pathway streamlined requirements and documentation process, MTA program managers and PEOs stated that they increased efficiencies and effectiveness and expedited prototyping and fielding efforts. Finally, DoD acquisition personnel expanded use the MTA pathway, embracing the shift in acquisition culture; as of August 2021, DoD had 101 planned or active MTA programs.

[26] The initial capability document defines one or more new capability requirements and associated capability gaps, while the capability development document specifies capability requirements in terms of developmental key performance parameters, key system attributes, additional performance attributes, and other related information necessary to support development of one or more increments of a materiel capability solution.

Additional Interest in Middle Tier of Acquisition Programs

Additional interest in MTA programs and subsequent requests for information may burden program offices with administrative tasks and impact efficiencies gained from streamlining the acquisition process. For example, in the FY 2020 DoD Appropriations Bill, the Senate Appropriations Committee required the Navy to provide a complete list of approved Navy acquisition programs utilizing prototyping or accelerated acquisition authorities. The Committee also requested MTA documentation supporting the rationale for each selected acquisition strategy, a cost estimate and that the Assistant Secretary of the Navy (Financial Management and Comptroller) certify full funding of the acquisition strategies, and that DOT&E certify the appropriateness of planned testing strategies of Navy rapid acquisition programs. This resulted in the Navy providing to Congress a detailed, 18-page report on its MTA programs in February 2020.

In the explanatory statement to the FY 2021 DoD Appropriations Bill, the Senate Appropriations Committee for Defense noted that under current law several reporting requirements that apply to traditional acquisition programs were not required for MTA and rapid prototyping programs and to date MTA program information, such as acquisition strategies, test strategies, and a certification of full funding, has been provided only when specifically directed by the Committee. The Committee stated they were concerned by the lack of standard acquisition information and directed DoD personnel to provide documentation for all MTA programs for FY 2021. The information and documents requested by the Committee for FY 2021 for all MTA programs were similar to the FY 2020 request for Navy MTA programs.

For the programs that we reviewed, Appendix C details the results of DOT&E's review and the program offices' response to DOT&E's concerns. Additionally the Assistant Secretary of the Army (Financial Management and Comptroller), Assistant Secretary of the Navy (Financial Management and Comptroller), and the Assistant Secretary of the Air Force (Financial Management and Comptroller) certified that 10 MTA programs in our review were fully funded.[27]

[27] The Standard Missille-6 Block 1B, Phase 1A program was completed; and, therefore not included in the Navy's response.

Program personnel said they aligned oversight and program documentation commensurate with the level of the program.

For the programs that we reviewed, program personnel said they aligned oversight and program documentation commensurate with the level of the program. Specifically, F15-EX program personnel stated that the major benefit of using the MTA pathway was the ability to tailor a program and reduce the amount of documentation. They also stated that due to congressional interest and the significant estimated costs of the F-15EX program, they believed that it was prudent to "tailor-in" more documentation than required by DoD Instruction 5000.80. However, F-15EX program personnel stated that at a certain point, the MTA pathway would no longer be advantageous to use because of the additional oversight requirements. Furthermore, they equated the amount of work required to answer congressional requests regarding the MTA pathway to the amount of work required to complete milestone documents in a traditional acquisition pathway. Finally, the Acting Assistant Secretary of the Air Force for Acquisitions, Technology, and Logistics stated that excessive oversight may reduce the benefit a program below the MDAP level can obtain by using the MTA pathway versus a traditional pathway. For example, the Assistant Secretary did not want MTA programs below the MDAP level to be required to report as much as an MDAP equivalent traditional program just because they were using the MTA pathway.

Conclusion

As a result of the flexibilities of the MTA acquisition pathways, DoD programs embraced the shift in acquisition culture and increased use of the MTA pathways. The programs we reviewed used the MTA pathway to streamline acquisition processes and expedite prototyping and fielding efforts. All 11 of the MTA programs that we reviewed effectively leveraged the MTA pathways and complied with the requirements for entering the MTA pathway as defined by the DoD Instruction. Because of the significant investment in MTA programs and their importance to the DoD mission, the DoD must continue to balance management and oversight of these programs with the risk involved to ensure the efficient delivery of needed, useful, capabilities, at a fair and reasonable cost.

Appendix A

Scope and Methodology

We conducted this performance audit, from September 2020 through August 2021 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We interviewed personnel from the following organizations to determine the roles and responsibilities and if and how the DoD oversights, managed, and conducted MTA pathway projects in accordance with DoD guidance.

- USD(A&S)
- Under Secretary of Defense for Research and Engineering
- Under Secretary of Defense Comptroller and Chief Financial Officer
- DOT&E
- Director, Cost Assessment and Program Evaluation
- Vice Chairman of Joint Chiefs of Staff

We interviewed personnel responsible for managing and oversight of the component's use of the MTA pathway from the following locations.

- Deputy Assistant Secretary of the Air Force for Acquisition Integration
- Assistant Secretary of the Army, Acquisition, Logistics, and Technology
- Assistant Secretary of the Navy, Research, Development and Acquisition

We randomly selected a nonstatistical sample of 11 projects, valued at $3.7 billion, from a population of 69 active MTA programs, valued at $31.1 billion, in the pathway as of September 30, 2020.[28] We interviewed personnel at the PEO and program offices to obtain acquisition documentation to determine:

- purpose and how the program complied with the requirements of using the MTA pathway,
- status of program costs,
- whether the programs were on track to complete the program within the 5-year requirement or begin production within 6 months of program initiation, and
- how acquisition personnel managed and executed each project.

[28] We excluded one Air Force MTA program from our universe because it was a classified program.

We reviewed United States Code, Public Law, DoD directives, instructions, memorandums, and manuals. Additionally, we reviewed various DoD Component-level acquisition memorandums, handbooks, and guidance related to acquisition and the MTA pathway.

Internal Control Assessment and Compliance

We assessed internal controls and compliance with laws and regulations necessary to satisfy the audit objective. In particular, we assessed controls over oversight, management and execution of MTA programs. However, because our review was limited to these internal control components and underlying principles, it may not have disclosed all internal control deficiencies that may have existed at the time of this audit.

Use of Computer-Processed Data

We used computer-processed data from the Defense Acquisition Visibility Environment to perform this audit. The system is the central location for the DoD to access capabilities and information to support acquisition reporting, analysis, and decision making. Data processed through the system includes data entered directly into the system and data pulled from other sources such as Defense Acquisition Management Information Retrieval, Acquisition Information Repository, Navy Research, Development and Acquisition Information System, and the Project Management Resource Tools system. To verify the reliability and validate the accuracy of the data, we obtained MTA program data from the USD(A&S), DoD offices and the Military Services. We determined that the data was sufficiently reliable for the purposes of this report.

Prior Coverage

During the past 5 years, the Government Accountability Office (GAO) and the DoD Office of the Inspector General (DoD OIG) issued 4 reports discussing MTAs. Unrestricted GAO reports can be accessed at http://www.gao.gov. Unrestricted DoD OIG reports can be accessed at http://www.dodig.mil/reports.html/.

GAO

Report No. 20-439, "Defense Acquisitions Annual Assessment—Drive to Deliver Capabilities Faster Increases Importance of Program Knowledge and Consistent Data for Oversight", June 2020

> After review of 121 DoD weapon and information technology programs, the GAO determined that MDAPs continue to proceed with limited knowledge and inconsistent software development approaches and cybersecurity practices. The GAO also found that the DoD is challenged in assessing performance of MTA programs due to inconsistent reporting and wide variation in schedule metrics.

Report No. 19-439, "DoD Acquisition Reform–Leadership Attention Needed to Effectively Implement Changes to Acquisition Oversight," June 2019

> The GAO determined that the DoD made progress in implementing reforms to restructure the oversight of MDAPs by shifting decision making authority for many programs from the Office of the Secretary of Defense to the Military Departments. The GAO also found that top DoD leadership had not fully addressed continuing disagreements between the Office of the Secretary of Defense and the Military Departments about the division of roles and responsibilities for acquisition oversight.

DoD OIG

Report No. DODIG-2020-109, "Special Report: Lessons Learned for Department of Defense Acquisition Officials During Acquisition Reform", July 31, 2020

> The DoD OIG determined that common weaknesses existed among DoD acquisition programs in developing and meeting performance requirements, funding, determining procurement quantity, and testing and evaluation.

Report No. DODIG-2020-042, "Audit of the Service Acquisition Executives' Management of Defense Acquisition Category 2 and 3 Programs," December 20, 2019

> The DoD OIG determined that the Army, Navy, and Air Force Service Acquisition Executives did not appropriately identify or monitor whether their Departments' ACAT 2 or 3 program costs and schedules aligned with their respective ACAT designations. The DoD OIG also determined that the Army's Service Acquisition Executive deleted two programs from the Army's database without approval from nor inform the Army Headquarters Data Administrator.

Appendix B

Rapid Prototyping and Rapid Fielding Programs Using the Middle Tier of Acquisition Pathway as of September 30, 2020

As of September 30, 2020, the DoD had 69 active MTA programs estimated at $31.1 billion, ranging in size from an estimated cost of $1.1 million to $7.6 billion.[29]

DoD acquisition officials approved 62 programs for the MTA pathway before the effective date of the DoD Instruction 5000.80, December 30, 2019, and 7 programs after the effective date of the DoD Instruction. Of the 69 MTA programs using the MTA pathway, 56 are rapid prototyping and 13 are rapid fielding. Shaded programs represent programs that we reviewed during this audit.

DoD Component or Service	Type of MTA	Program Name	MTA Designation Date	Estimated Cost (in Millions)
Army	Rapid Prototyping (Non-major)	Integrated Tactical Network - Rapid Prototyping	05/14/2019	$77.4
		Integrated Visual Augmentation System	09/25/2018	$863.9
		Rapid Opioid Countermeasures System 10 Mg Naloxone Autoinjector	10/02/2018	$34.1
		Standoff Activated Volcano Obstacle	12/31/2019	$28.6
		Short Range Reconnaissance	01/23/2020	$36.3
		Terrestrial Layer System	05/14/2020	$214.1
		Unified Network Operations	05/14/2019	$80.7
	Rapid Prototyping (Major)	Extended Range Cannon Artillery	09/25/2018	$748.8
		Lower Tier Air And Missile Defense Sensor	09/25/2018	$728.5
		Mobile Protected Firepower	09/25/2018	$852.9
		Next Generation Squad Weapons	09/25/2018	$231.0
		Optionally Manned Fighting Vehicle	09/25/2018	$1,487.0

[29] Estimated costs were from the Services' certifications of full funding in response to the Senate Appropriations Committee for Defense's requirement in the FY 2021 DoD Appropriations Bill, program identification data uploaded to the Defense Acquisition Visibility Environment, or from documentation provided by program personnel.

Rapid Prototyping and Rapid Fielding Programs Using the Middle Tier of Acquisition Pathway as of September 30, 2020 (cont'd)

DoD Component or Service	Type of MTA	Program Name	MTA Designation Date	Estimated Cost (in Millions)
Army (cont'd)	Rapid Fielding (Non-major)	Capability Set 21 Integrated Tactical Network - Rapid Fielding	07/09/2020	$176.2
		Small Multipurpose Equipment Transport	08/13/2019	$157.0
Navy	Rapid Prototyping (Non-major)	Hammerhead Encapsulated Effector	03/29/2019	$156.2
		Integrated Communications and Data System	08/19/2019	$109.8
		Medium Range Intercept Capability	06/30/2020	$85.5
		Medium Unmanned Surface Vehicle	03/05/2019	$200.1
		Multi Mission Underwater Breathing Apparatus	11/07/2019	$13.3
		Standard Missile-6 Block IB Phase IA Rocket Motor	02/14/2018	$28.0
		Standard Missile-6 Block IB Phase IB All Up Round	11/09/2018	$434.3
		Standardized Tester of Reprogrammable Munitions	09/30/2019	$37.4
		Wargaming Capability	05/24/2019	$116.1
	Rapid Prototyping (Major)	Navy Conventional Prompt Strike	08/30/2019	Not Available[1]
		Next Generation Naval Mission Planning System	09/30/2019	$218.0
		Standard Missile-2 Block IIIC	11/14/2017	$469.8
	Rapid Fielding (Non-major)	Counter Insider Threat Capability	02/06/2019	$47.7
		Deployable Surveillance Systems - Deep Water Passive	03/18/2019	$89.1
		Marine Corps Wideband Satellite - Expeditionary	02/18/2020	$20.6
		Submarine-Launched Unmanned Aerial System	05/21/2019	$32.1
Air Force	Rapid Prototyping (Non major)	Air Operations Center Weapon System Modifications	06/21/2019	$255.3
		Airborne High Frequency Radio Modernization	09/04/2018	$169.0
		Cobra Dane ADPE Rehost Phase II	12/06/2019	$68.8

Rapid Prototyping and Rapid Fielding Programs Using the Middle Tier of Acquisition Pathway as of September 30, 2020 (cont'd)

DoD Component or Service	Type of MTA	Program Name	MTA Designation Date	Estimated Cost (in Millions)
Air Force (cont'd)	Rapid Prototyping (Non major) (cont'd)	E-3 AWACS Communication Network Upgrade	10/18/2018	$188.8
		E-3 Mode 5 Acceleration	10/30/2018	$240.8
		E-4B Survivable Super High Frequency	04/18/2019	$128.2
		Military GPS User Equipment Increment 2 Handheld	11/13/2018[2]	Not available[2]
		Nuclear Planning and Execution System Recapitalization	09/14/2018	$143.6
		Resilient Embedded GPS/INS	11/30/2018	$343.0
		Three-Dimensional Expeditionary Long-Range Radar	12/27/2019	$41.9
	Rapid Prototyping (Major)	Air-Launched Rapid Response Weapon	05/03/2018	$1,410.5
		B-52 Commercial Engine Replacement Program	09/20/2018	$513.8
		E-3 AWACS Combat Identification Diminishing Manufacturing Sources	10/19/2019	$102.7
		E-3 AWACS Electronic Protection	11/27/2018	$364.8
		Evolved Strategic Satellite Communications	12/14/2018	$1,455.5
		F-22 Capability Pipeline	09/21/2018	$1,842.0
		Family of Advanced Beyond Line-of-Sight Terminals Force Element Terminal	02/07/2019	$545.9
		Future Operationally Resilient Ground Evolution	12/05/2019	$2,471.7
		Military GPS User Equipment Increment 2 Miniature Serial Interface	11/13/2018	$1,474.9
		Next Generation Overhead Persistent Infrared Space	06/22/2018	$7,597.2
		Protected Tactical Enterprise Service	06/18/2018	$281.1
		Protected Tactical Satellite Communications	11/16/2018	$924.7
		Unified Platform Prototype	08/23/2018	Not available[3]

Rapid Prototyping and Rapid Fielding Programs Using the Middle Tier of Acquisition Pathway as of September 30, 2020 (cont'd)

DoD Component or Service	Type of MTA	Program Name	MTA Designation Date	Estimated Cost (in Millions)
Air Force (cont'd)	Rapid Fielding (Non-major)	Counter-Small Unmanned Aircraft Systems Phase 0	08/01/2019	$23.6
		Mission Planning - Special Mission – Air Combat Command Combat Search and Rescue Modernization Pedro King	11/29/2018	$34.8
		T-6 Enhanced Onboard Oxygen Generating System	08/26/2019	$51.4
	Rapid Fielding (Major)	F-15EX	09/24/2019	$2,691.1
DISA	Rapid Prototyping (Non-major)	National Background Investigation Services	11/08/2018	$9.6
USSOCOM	Rapid Prototyping (Non-major)	Counter Small Unmanned Aerial Systems Family of Systems	09/17/2018	$7.2
		Handgun Suppressor	12/12/2019	$1.1
		Lightweight Machine Gun – Medium	02/13/2019	$9.7
		Mid-Range Gas Gun	02/14/2019	$4.8
		Personal Defense Weapon System	12/11/2018	$6.2
		Precision Strike System - Ground Precision Engagement	12/21/2018	$60.6
		Precision Strike System - Maritime Precision Engagement	12/21/2018	$30.6
		Special Operations Forces Combat Diving Navigation	08/09/2018	$10.1
		Special Operations Forces Combat Diving Propulsion	08/09/2018	$10.9
	Rapid Fielding (Non-major)	Fire Support - Mission Training, and Preparation System	04/23/2020	$28.7
		Special Operations Forces Combat Diving	08/09/2018	$15.1

[1] According to the Navy's submission to the Senate Appropriations Committee for Defense's requirement in the FY 2021 DoD Appropriations Bill the Navy Conventional Prompt Strike program was still developing cost estimates for the program.

[2] Although the designation date for the Air Force Military GPS User Equipment Increment 2 Handheld was listed as 11/13/2018 in the Defense Acquisition Visibility Environment System, according to the Air Force's submission to the Senate Appropriations Committee for Defense's requirement in the FY 2021 DoD Appropriations Bill, the Air Force Military GPS User Equipment Increment 2 Handheld is not scheduled to begin until FY 2023.

[3] The Air Force Uniformed Platform Prototype program transitioned from the MTA pathway in July 2020, and program costs were not reported in the Air Force's submission to the Senate Appropriations Committee for Defense's requirement in the FY 2021 DoD Appropriations Bill.

Source: The DoD OIG.

Appendix C

Results of the Director, Operational Testing and Evaluation's Review of Middle Tier of Acquisition Test Plans

Conclusion	Program[1]	Concerns	Response or Action by Program Office[2]
Appropriate with no risk	Rapid Opioid Countermeasures System program	None	N/A
	Next Generation Naval Mission Planning System program	None	N/A
Appropriate with risk	E-3 AWACS Communication Network Upgrade program	Specific cybersecurity test events are not yet defined but are currently being develop by the operational test organization.	Program personnel stated there will be no cybersecurity testing at the MTA program level but that cybersecurity testing will be conducted on the entire AWACS platform.
	F-15EX program	The Air Force proposed changing the cyber infrastructure of the aircraft in Lot 2, which will require an update to the cybersecurity test plan and the planned verification, validation, and accreditation activities. Further delays in Eagle Passive/Active Warning and Survivability System development could hinder the operational evaluation of F-15EX effectiveness and survivability during the planned operational testing. If the Air Force selects a different engine for production and fielding, it would require significant digital flight control/engine control software modifications and thus require a change to the current test strategy.	Program personnel stated they are coordinating with DOT&E on all three concerns identified. The program will address the concerns in an update to the program strategy document that will support the program's transition to an MDAP anticipated to occur in the third quarter of FY 2022.
	Submarine-Launched Unmanned Aerial System program	The detailed test plan for the system has not been finalized. Additionally, the strategy did not identify funding required to execute the strategy, introducing additional risk to the strategy.	The program manager stated that the capability is addressed in the overarching test and evaluation master plan revision for the AN/BYG-1 Combat Control System. The master test strategy identifies components not addressed in the AN/BYG-1 test and evaluation master plan and provides the details for the developmental testing and operational testing plans.

Results of the Director, Operational Testing and Evaluation's Review of Middle Tier of Acquisition Test Plans (cont'd)

Conclusion	Program[1]	Concerns	Response or Action by Program Office[2]
Not appropriate	Capability Set 21 Integrated Tactical Network program	The strategy did not include a plan for testing in an operationally representative electromagnetic spectrum environment or plan for a cyber-adversarial assessment.	The program office is actively working with DOT&E in development and execution of test plans to support follow on Capability Set 21 product verification testing and Capability Set 23 threat based assessments.
	Small Multipurpose Equipment Transport program	The strategy did not include an operational demonstration to support early fielding.	During the Phase II effort, which preceded the current MTA, the program conducted a seven month operational technology demonstration with the prototype systems. The program office used data collected during the demonstration to refine the prototype systems to user requirements and further define the Abbreviated Capability Development Document. The Phase II prototype effort then transitioned to the MTA rapid fielding program.
Not certifiable	Counter-Small Unmanned Aerial Systems Phase 0 program	For the Counter-Small Unmanned Aircraft Phase 0 program various Service components and combatant commands conducted numerous operational demonstrations that could substitute for a test strategy, but the planning and results were not made available in time for DOT&E to review.	Program personnel stated that testing, in coordination with the Air Force Operational Test and Evaluation Center and DOT&E was conducted in early 2020. Testing reports are available for DOT&E's review.
	Marine Corps Wideband Satellite Expeditionary program	The program was approved to use the pathway in February 2020 and test strategy has yet to be developed.	Program personnel stated that they documented the test strategy approach in the Acquisition Strategy and that the approach met the criteria of the DOT&E certification, as outlined in the Congressional record.
	Next Generation Squad Weapons program	DOT&E was unable to certify because the program strategy was under development with an expected completion date in FY 2021 or FY 2022.	The Program Office will submit a test strategy and DOT&E is an active participant in the development of the program evaluation strategy. The strategy is expected to be completed in late FY 2021 or early FY 2022 and will begin staffing for approval at that time.

[1] The Standard Missille-6 Block 1B, Phase 1A program was completed, and therefore not reviewed by DOT&E.

[2] The program offices provided responses to the DoD OIG regarding planned actions after DOT&E published their evaluation.

Source: The DoD OIG.

Acronyms and Abbreviations

DOT&E	Director, Operational Test and Evaluation
MDAP	Major Defense Acquisition Program
MTA	Middle Tier of Acquisition
NDAA	National Defense Authorization Act
NGSW	Next Generation Squad Weapons
PEO	Program Executive Office
USD(A&S)	Under Secretary of Defense for Acquisition and Sustainment

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