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Research and Development

DOD Benefited from Financial Flexibilities but Could Do More to Maximize Their Use

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Abstract

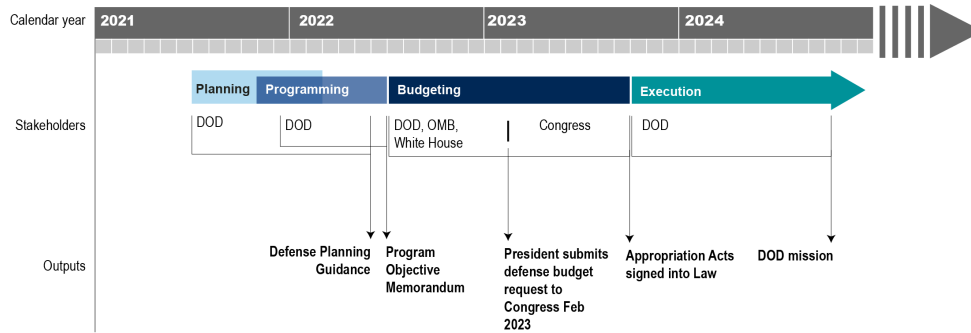
DOD receives about \$95 billion annually to fund its R&D activities. Members of Congress, DOD officials, industry representatives, and researchers have raised questions about whether the process used to request and allocate those funds is fast and flexible enough to respond to evolving threats. GAO examined authorities related to budgeting and financial management that allowed DOD flexibility in its use of funds to support R&D, innovation, and modernization activities during fiscal years 2017 through 2021. The presentation will provide an overview of the 26 flexibilities GAO identified and will focus on DOD’s use of five to accelerate R&D efforts. These five flexibilities supported thousands of activities contributing to DOD R&D and efforts to modernize or innovate capabilities for military departments. GAO found three factors—planning, guidance, and institutional support—that helped enable DOD officials’ use of the five flexibilities. GAO reviewed U.S. Code, relevant legislation, and DOD documents; selected a nongeneralizable sample of five flexibilities, chosen to provide variation in what they allowed DOD to do, and 25 activities as illustrative examples and to assess their use; and interviewed DOD and military department officials.

Keywords: Research and development, Modernization, Innovation, Acquisition authorities, Planning Programming Budgeting and Execution (PPBE) process

Background

DOD decides how much funding to request annually for each military department through the PPBE process. According to DOD, the objective of the process is to provide the department with the most effective mix of forces, equipment, personnel, and support attainable within fiscal constraints. It involves numerous offices within DOD and the military departments; the Office of Management and Budget; the White House; and Congress.

The process begins with strategic planning and ends with the execution, or obligation, and expenditure of funds to complete DOD’s mission, such as developing and delivering technologies to the warfighter. It generally takes around 2 years to obtain funding but can take longer (see fig. 1).



Source: GAO analysis of Department of Defense (DOD), GAO, and Office of Management and Budget (OMB) information. | GAO-23-105822

Figure 1. Notional DOD Planning, Programming, Budgeting, and Execution Timeline, Phases, Stakeholders, and Outputs for Fiscal Year 2024 Funding



In June 2017, we reported that the lengthy PPBE process can slow innovation. For example, a project conceived in November 2021 might not be authorized and appropriated funding until October 2023 or later. Projects that are expected to take 3 to 5 years to complete in effect can require 5 to 7 years from conception to completion. We also reported that these long timelines can make it difficult to achieve the adaptability and faster capability development and fielding times that DOD seeks to keep pace with rapidly evolving threats.

Additionally, over the last 10 years, budget submissions and appropriations acts have generally been late. On average budget submissions were 42 days late and appropriations acts were signed into law 108 days after the fiscal year start. Leaders from both the executive and legislative branches have identified lengthy delays in regular appropriations as a threat to national security. In addition, some of these leaders have publicly stated that the delays contribute to ineffective use of funds.

Annual Defense Appropriations

During the budget phase of the PPBE process, Congress drafts legislation that, when signed into law, provides DOD with budget authority in appropriations acts. Congress specifies the purpose for which each appropriation may be used, the amount of budget authority available, and the time period in which it is available under each appropriation. DOD uses that authority during the final phase of the PPBE process to execute its mission. Most of DOD's appropriations can be grouped into five major categories. Appropriations may be used only for their intended purposes and, for fixed-period appropriations, only for a defined period of time. See table 1 for examples of the four categories of appropriations included in this report; the fifth is for Military Personnel. Two of the appropriations categories—RDT&E and Military Construction (MILCON)—are discussed further below.



Table 1: Selected Categories of Defense Appropriations

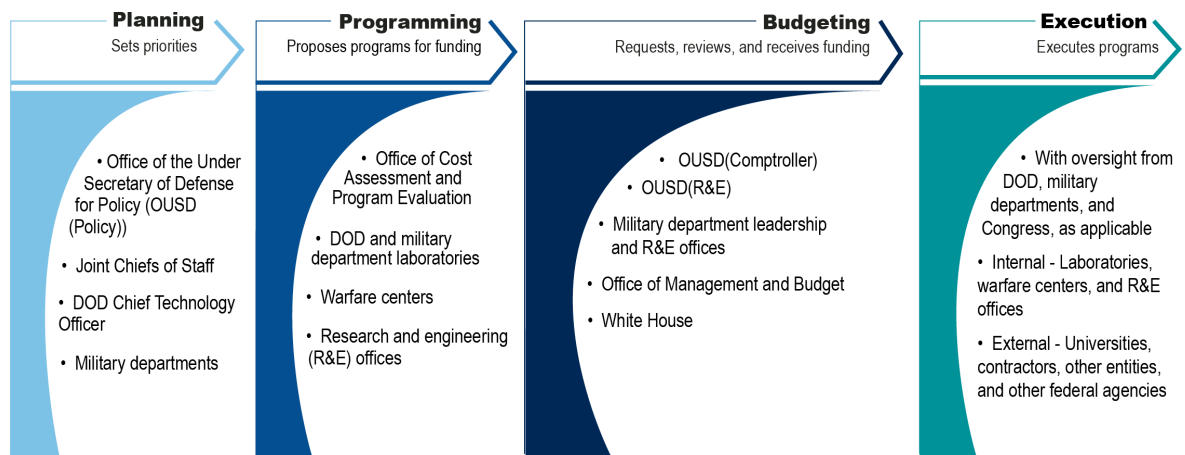
Appropriation category	Notional examples of use	Years available for new obligation
Research, Development, Test and Evaluation	Funds activities performed by government laboratories, universities and contractors for the research and development of equipment and software, and its test and evaluation	2
Procurement	Funds acquisition programs approved for production and the costs integral to delivering a useful end item intended for operational use or inventory, including purchase of software licenses	3
Operation and Maintenance	Funds civilian salaries, travel, software license renewals, minor construction projects, training and education, depot maintenance, operating military forces, and base operations support	1
Military Construction	Funds major construction projects such as bases, schools, missile storage facilities, medical/dental clinics, military family housing, sensitive compartmented information facilities, and research and development installations	5

Source: GAO summary of Department of Defense information (Financial Management Regulation, 7000.14-R). | GAO-23-105822

To maintain technological superiority on the battlefield, DOD relies on scientific and technical knowledge developed largely through R&D activities and investments funded by the department and performed by industry, universities, government labs, and others. RDT&E appropriations include eight budget activities and largely fund DOD’s R&D efforts. For example, the first three budget activities generally represent efforts undertaken by research laboratories, industry, and academia to advance research in areas important to U.S. military capabilities, drive long-term innovation, and develop technology. The other five budget activities are typically associated with product development for acquisition programs or fielded capabilities and comprise the majority of RDT&E funds.

Many organizations within DOD are involved in R&D activities, from setting priorities to execution and oversight. See figure 2 for examples of the stakeholders involved in science and technology funding.





Source: GAO analysis of Department of Defense (DOD) information. | GAO-23-105822

Figure 2. Examples of DOD Science and Technology Stakeholders in the Planning, Programming, Budgeting, and Execution (PPBE) Process

Some of the key officials and organizations involved in the implementation and oversight of R&D-related efforts include:

- The Under Secretary of Defense for Research and Engineering (USD(R&E))—the principal advisor to the Secretary of Defense for research, engineering, and technology development activities and programs—serves as DOD’s chief technology officer. The powers and duties of this office include establishing policies and providing oversight for DOD’s research, engineering, and technology development activities.
- The Deputy Chief Technology Officer for Science and Technology supports DOD’s research and engineering mission by helping to ensure comprehensive, department-level insight into the activities and capabilities of the defense labs. The Deputy Chief’s office carries out a range of core functions related to the defense labs, including analysis of capabilities, alignment of activities, and advocacy.
- The USD(Comptroller)—the principal advisor to the Secretary of Defense for budgetary and fiscal matters—serves as DOD’s chief financial officer and administers the budget and execution phases of the PPBE process. The powers and duties of this office include financial management, accounting policy and systems, budget formulation and execution, and contract and audit administration.
- The USD for Acquisition and Sustainment (A&S)—the principal advisor to the Secretary of Defense for all matters relating to acquisition and sustainment, including system design and development; production; installation maintenance, management, and resilience; military construction; and procurement of goods and services, among other things. The powers and duties of this office include establishing policies and providing oversight of the DOD acquisition system, including rapid acquisition policies for urgent operational needs and acquisition of software.
- Military Department Assistant Secretaries of Air Force, Army, and Navy responsible for acquisition, technology, and logistics generally oversee, or have responsibilities related to, R&D. The powers and duties of these offices generally include establishing policies and providing oversight for the military departments’ research, engineering, technology development, and acquisition activities.
- Military Department Assistant Secretaries of the Air Force, Army, and Navy responsible for financial management serve as comptrollers of the military



departments. They are responsible for policies, procedures, programs, and systems pertaining to finance and accounting activities and operation. The powers and duties of these offices generally include RDT&E budget formulation, the presentation and defense of the budget through the congressional appropriation process, budget execution and analysis, reprogramming actions, and appropriation fund control/distribution.

- Military Department Laboratories conduct R&D activities along with universities, federally-funded research and development centers, and other entities.

Military Construction

MILCON funds R&D-related construction projects, including facility modernization and new construction, among other things. R&D-related construction projects represent a relatively small proportion of needs and compete for funding with other construction projects, such as runways, piers, barracks, schools, hospitals, and other facilities. DOD includes a fraction of its construction-related needs each year in the President's budget request, which can result in neglected facilities that become more costly to maintain and repair. For example, the maintenance portion of the fiscal year 2022 budget request for MILCON included \$348 million whereas a couple years earlier, for fiscal year 2020, DOD reported a deferred maintenance backlog of \$137 billion. DOD leadership has raised concerns about the performance, reliability, and long-term viability of DOD's lab and test center infrastructure given the degraded facilities. To assist DOD labs, Congress has authorized certain flexibilities to help address laboratory construction and maintenance needs.

Flexibilities

Congress generally provides defense budget oversight, direction, and authorities to DOD through two annual bills—defense appropriations and authorization acts. Once signed into law, some of these legislative authorities allow DOD to address problems the department or Congress identified by providing DOD with financial flexibility in use of funds to support R&D, innovation, and modernization activities. These financial flexibilities may be limited to relatively small amounts of funding or target high-priority activities, such as addressing improvised explosive devices. Congress can provide temporary financial flexibilities, such as a pilot program for a new budget activity during which DOD and Congress can learn how a change in operations may work without investing relatively large amounts of funds or committing to long-term changes.

Congress can also give DOD the discretion to exercise a financial flexibility or not. For example, Congress authorized the Pilot Program on Modernization and Fielding of Electromagnetic Spectrum Warfare Systems and Electronic Warfare Capabilities in fiscal year 2017, and it remains in effect through fiscal year 2023. However, in May 2018, DOD notified the House of Representatives Committee on Armed Services that it had not established the pilot program because it would instead use modernization plans to improve legacy electromagnetic spectrum warfare and electronic warfare systems.

Financial flexibilities can also vary in terms of the discretion granted to DOD as demonstrated by the five flexibilities examined further in this review.

1. **Funding Laboratory Enhancements Across Four Categories (FLEX-4).** First introduced in fiscal year 2009 and codified in legislation enacted in 2017, this flexibility requires DOD to establish mechanisms for labs to use certain funds. In the event the director of a lab decides to use the flexibility, they must use between two and four percent of the lab's available funds for basic and applied research,



workforce development, efforts that support transitioning technology into operational use, and lab repair, revitalization, and minor refurbishment activities. The military departments have internal procedures for determining how to spend these funds but do not have to go through the full PPBE process.

2. **Defense Research and Development Rapid Innovation Program, also known as Defense Rapid Innovation Fund (RIF).** First introduced in fiscal year 2011 and codified in legislation enacted in 2018, RIF allows DOD to transfer RIF-available funds to department RDT&E appropriations accounts (e.g. from Defense-wide RDT&E to Army RDT&E) to develop innovative technologies. RIF activities focus on maturing and demonstrating technologies in a relevant environment with the goal of transitioning them to defense programs.
3. **Rapid Acquisition Authority (RAA).** First introduced in fiscal year 2003 and codified in legislation enacted in 2022, RAA allows DOD to use any of its available funds for the urgent acquisition and deployment of capabilities to eliminate deficiencies that could result in mission failure or loss of life. The funding decisions are approved within the department and do not have to go through the planning, programming, and budgeting phases of the PPBE process, but DOD must notify Congress about its use.
4. **Software and Digital Technology Pilot Programs, also known as Budget Activity Eight (BA-8).** Introduced in fiscal year 2021, this pilot, using a new RDT&E budget activity, allows certain DOD programs to develop, buy, and maintain software using a single appropriation category rather than the three appropriations categories typically required for these types of efforts (RDT&E, Procurement, and Operation and Maintenance [O&M]).
5. **Defense Laboratory Modernization Program (Lab Modernization).** First introduced in fiscal year 2016 and codified by the James M. Inhofe National Defense Authorization Act for Fiscal Year 2023, Lab Modernization allows DOD to obligate RDT&E, rather than MILCON, funds to support certain lab- or test center-related military construction. DOD must comply with military construction and congressional notification requirements.

DOD Has Not Communicated Information about Available Financial Flexibilities across the Department

We found that DOD has not broadly communicated information about available financial flexibilities throughout the agency. The Office of the Under Secretary for Defense (OUSD)(R&E), OUSD(Comptroller), and officials from the military departments responsible for research do not maintain centralized information on financial flexibilities that can be used to support DOD's R&D, innovation, and modernization efforts, nor is there a single responsible organization for these flexibilities. Instead, responsibility is distributed across different organizations in the department. OUSD(R&E) and OUSD(Comptroller) officials said that makes compiling information on the flexibilities difficult.

Without centralized information on financial flexibilities, we took steps to identify financial flexibilities available to DOD during fiscal years 2017 to 2021 to support its R&D efforts. The 26 financial flexibilities we identified support: (1) laboratory and test facility needs; (2) technology development; (3) development and fielding of capabilities to address specific threats; or (4) modern software development. We found over half of the 26 flexibilities provided DOD with decision-making over funds that it collected from providing services or that nonfederal government entities contributed towards certain DOD project



costs. Table 2 lists the 26 financial flexibilities we identified. Appendix I provides summaries, congressional reporting requirements, and other information about these flexibilities. There may be additional flexibilities that are not included, but this resource may be a helpful starting point.

Table 2: Financial Flexibilities Relevant to DOD’s Research and Development, Innovation, and Modernization Efforts from Fiscal Years 2017 through 2021

Flexibility	United States Code (U.S.C.) or legislation	Fiscal year originally authorized
Supports laboratory and test facility needs		
Availability of Samples, Drawings, Information, Equipment, Materials, and Certain Services	10 U.S.C. § 4892	1994
Centers for Science, Technology, and Engineering Partnership	10 U.S.C. § 4124	2016
Cooperative Agreements for Reciprocal Use of Test Facilities: Foreign Countries and International Organizations	10 U.S.C. § 2350l	2002
Defense Laboratory Modernization Program ^a	10 U.S.C. § 2805(g)	2016
Enhanced Transfer of Technology Developed at Department of Defense (DOD) Laboratories	National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2014, Pub. L. No. 113-66, § 801 (2013), as amended, (10 U.S.C. § 4832 note)	2014
Federal Defense Laboratory Diversification Program	10 U.S.C. § 4833	1995
Mechanism to Provide Funds for Defense Laboratories for Research and Development of Technologies for Military Missions. DOD refers to this flexibility as the Funding Laboratory Enhancements Across Four Categories (FLEX-4)a	10 U.S.C. § 4123	2009
Pilot Program to Improve Incentives for Technology Transfer from DOD Laboratories	NDAA for FY 2018, Pub. L. No. 115-91, § 233 (2017), as amended (10 U.S.C. § 4832 note)	2018
Unspecified Minor Construction – Laboratory Revitalization	10 U.S.C. § 2805(d)	1982
Use of Test and Evaluation Installations by Commercial Entities	10 U.S.C. § 4175	1994
Supports technology development		
Authority of the Department of Defense to Carry Out Certain Prototype Projects	10 U.S.C. § 4022	2016
Cooperative Research and Development Agreements: North Atlantic Treaty Organization (NATO) Organizations; Allied and Friendly Foreign Countries	10 U.S.C. § 2350a	1990
Defense Dual-use Critical Technology Program	10 U.S.C. § 4831	1993
Defense Research and Development Rapid Innovation Program. DOD refers to this flexibility as the Defense Rapid Innovation Fund (RIF)a	10 U.S.C. § 4061	2011
Foreign Contributions for Cooperative Projects	10 U.S.C. § 2350i	1992
Manufacturing Technology Program	10 U.S.C. § 4841	1994
Military Aviation and Installation Assurance Clearinghouse for Review of Mission Obstructions	10 U.S.C. § 183a	2018
Nontraditional and Small Contractor Innovation Prototyping Programb	NDAA for FY 2017, Pub. L. No. 114-328, § 884 (2016), as amended	2017
Prizes for Advanced Technology Achievements	10 U.S.C. § 4025	2000
Rapid Prototyping Fundc	NDAA for FY 2016, Pub. L. No. 114-92, § 804(d) (2015), as amended	2016



Research Projects: Transactions Other than Contracts and Grants	10 U.S.C. § 4021	1990
Supports development and fielding of capabilities to address specific threats		
Joint Improvised-Threat Defeat Fund	Consolidated Appropriations Act, 2017, Pub. L. No. 115-31, Div. C, Title IX, Other Department of Defense Programs (2017)	2017
National Defense Sealift Fund	10 U.S.C. § 2218	1993
Pilot Program on Modernization and Fielding of Electromagnetic Spectrum Warfare Systems and Electronic Warfare Capabilities	NDA for FY 2017, Pub. L. No. 114-328, § 234 (2016) (10 U.S.C. § 113 note)	2017
Procedures for Urgent Acquisition and Deployment of Capabilities Needed in Response to Urgent Operational Needs or Vital National Security Interest. DOD refers to this flexibility as the Rapid Acquisition Authority (RAA)	10 U.S.C. § 3601	2003
Supports modern software development		
Software and Digital Technology Pilot Programs. DOD refers to this flexibility as Budget Activity Eight (BA-8)	Consolidated Appropriation Acts, 2021, Pub. L. No. 116-260, § 8131 (2020)	2021

We found that some Army, Navy, and Air Force officials who are responsible for, or work at, department-level R&D organizations were not familiar with certain flexibilities for technology development and technology transfer. OUSD(R&E), OUSD(Comptroller), and some military department officials explained that an official might not be familiar with some flexibilities because they might be new to their roles, the flexibility is not widely used, or the flexibility does not pertain to their area of responsibility. Some of these officials explained that while a senior official responsible for R&D efforts or laboratory director might not be aware of all available financial flexibilities, they could rely on their staff to provide information about various flexibilities and advocate for use of the flexibility to meet a research need. However, some of these officials stated that leadership’s lack of familiarity with financial flexibilities could lead to underuse of flexibilities to support DOD’s R&D efforts.

- An Army official responsible for laboratory management and Navy officials responsible for R&D policy said that they review legislation, such as National Defense Authorization Acts and appropriation acts, to identify relevant flexibilities to their area of responsibility, and pass this information to officials within their chain of command.
- Officials in the Office of the Secretary of the Air Force said that they reviewed guidance issued by the Office of Management and Budget and DOD to identify relevant flexibilities. Furthermore, they explained, many program element monitors—officials responsible for a specific program in the budget request—annually review the National Defense Authorization Act to identify applicable flexibilities for their program. Officials said the review is a time-consuming task on top of their primary responsibilities.
- A senior OUSD(R&E) official stated that they collect legislative information about the flexibilities under their purview and share information with lab governance panels. However, we found the information was generally related to hiring authorities rather than financial flexibilities.
- OUSD(Comptroller) publishes a summary of certain flexibilities on its website. However, it was not comprehensive and included two of the 26 flexibilities we identified. In addition, some officials responsible for R&D and financial management said they were not familiar with this resource. OUSD(Comptroller) officials explained



this resource generally covers flexibilities that involve their office, such as reprogramming and transfer authorities. The summary is from January 2021, but a responsible official said that they plan to update it in 2023.

However, these officials stated that this information is not necessarily widely available. For example, information OUSD(R&E) collects and shares would not be available to officials who are not part of OUSD(R&E)'s governance panels. As of January 2023, an OUSD(R&E) official stated that they are considering whether to make the information on flexibilities they track available department-wide but do not have a specific timeline for when this would be completed.

In addition, the annual reviews of new legislation may not result in a complete understanding of the breadth of available flexibilities. The reviews do not capture financial flexibilities that are not amended annually. For example, an official could miss the availability of the Enhanced Transfer of Technology Developed at DOD Laboratories flexibility because it was infrequently amended—once in 2016 and 5 years later in 2021. As of March 2023, the flexibility has not been amended.

Army, Navy, and Air Force officials said that having widely available information about the financial flexibilities would be helpful to confirm their understanding of the flexibilities and to ensure they did not miss identifying relevant authorities that could support R&D efforts. For example, they said that a resource with information about a flexibility—such as whether it identifies a funding source, is authorized for a fixed period of time, and has congressional reporting requirements—would help them understand how to use it. In addition, identifying relevant DOD and military department guidance would help facilitate the use of financial flexibilities, according to Army and Navy officials. Air Force officials said that DOD could use existing mechanisms to widely communicate information about the flexibilities, such as having Defense Acquisition University courses cover current financial flexibilities or refer to a resource with such information.

Standards for Internal Control in the Federal Government calls for management to internally communicate the necessary quality information to achieve an objective. Similarly, we previously reported that DOD should educate users to maximize the use of flexibilities to address various challenges, ranging from quickly fielding solutions to the warfighter to increasing innovation from nontraditional defense contractors. We also reported that DOD increased its use of human capital authorities as the agency's leadership encouraged the use of the authorities and provided guidance to address confusion about the authorities' requirements. Without having a responsible office to regularly collect and provide easily accessible information about the availability of the flexibilities, DOD officials may not be fully leveraging them to further support the department's R&D goals.

DOD Used Selected Flexibilities to Support R&D Efforts but Faced Some Challenges

DOD's use of selected financial flexibilities from fiscal years 2017 through 2021 supported thousands of activities contributing to DOD R&D and efforts to modernize or innovate capabilities for military departments. The use of selected financial flexibilities varied and depended on several factors, such as having to meet specific criteria to use the flexibility or availability of funds. We found planning, guidance, and institutional support enabled DOD's use of the selected flexibilities, but DOD faced challenges when using some of these flexibilities. DOD officials cited numerous benefits that resulted from the use of selected financial flexibilities, including the ability to address R&D and operational needs or requirements that arise outside of DOD's planning, programming, and budgeting process.



DOD’s Use of Selected Flexibilities Depended on Availability of Funding and Eligibility Requirements That Aligned with Needs

DOD reported making about \$4.5 billion available from fiscal years 2017 through 2021 for the five selected financial flexibilities we reviewed to address specific lab needs, support technology development, develop and field capabilities to address specific threats, and fund software development (see table 3). This amount constituted less than half of the total amount allowed by the selected flexibilities from fiscal years 2017 through 2021, and constituted a small percentage of DOD’s RDT&E appropriations overall.

Table 3: Reported Amounts Available for Selected Flexibilities from Fiscal Years 2017 through 2021

Dollars represent amounts DOD reported as available, rounded to nearest million. BA-8 was not available (NA) in fiscal years 2017 through 2020.

Flexibility	2017	2018	2019	2020	2021	Total
Funding Laboratory Enhancements Across Four Categories (FLEX-4)	299	459	530	559	620	2,467
Defense Research and Development Rapid Innovation Program, also known as Defense Rapid Innovation Fund (RIF)	250	250	241	-	-	741
Rapid Acquisition Authority (RAA)	424	-	155	18	-	597
Software and Digital Technology Pilot Programs, also known as Budget Activity Eight (BA-8)	NA	NA	NA	NA	588	588
Defense Laboratory Modernization Program (Lab Modernization)	-	-	-	111	-	111
Total	973	709	926	688	1,208	4,504

Source: GAO analysis of Department of Defense (DOD) information. | GAO-23-105822

DOD’s use of the five selected flexibilities varied, in part, based on the availability of funding and the needs the flexibilities were designed to address. For example, FLEX-4 allows lab directors to use between 2 to 4 percent of their labs’ available funds in support of activities in four categories that generally align with routine lab performance. In December 2018, we reported that this affords lab directors greater ability to make their own decisions over which activities the lab prioritizes and the means to fund those activities. In contrast, DOD used RAA as needed to meet specific urgent or emergent requirements to eliminate deficiencies that could result in the loss of life or mission failure, which led to more sporadic use during this time. The following further details use and conditions under which the funding can be used for each selected flexibility.

FLEX-4. FLEX-4 was the most frequently used of the selected flexibilities, funding thousands of activities across military department labs during fiscal years 2017 through 2021, according to DOD.²⁸ Its overall use has increased across the military departments since 2017, when we previously found that the military departments were not maximizing their use of the flexibility.²⁹ Some labs applied the full 4 percent allowed by statute to FLEX-4 activities. Other labs increased their use as of fiscal year 2022 or have plans to do so in the near future. According to DOD, each of the military departments takes its own approach to funding FLEX- 4.

DOD reported that FLEX-4 provides labs with flexibility to exploit scientific advances, respond to threats outside the PPBE cycle, and address lab- identified priorities. According to DOD, it provides funding for critical activities that would not otherwise receive funding. For example, a quarter of the Air Force’s FLEX-4 basic and applied research category supports seedling initiatives to prove new concepts—providing initial funding for initiatives that could



contribute to key future advances, according to DOD. Air Force officials explained that without FLEX-4 spending minimums, lab funds may be redirected to technologies with existing missions. FLEX-4 also helps by offering support for building and shaping labs' talent pool in new and emerging technology areas, according to DOD. For example, officials from some of the selected activities said FLEX-4 offered opportunities to grow and deepen staff knowledge and experience in the areas of artificial intelligence and autonomy.

RIF. Congress directly funded RIF in fiscal years 2017 through 2019, supporting hundreds of R&D and technology demonstration activities across DOD. However, Congress has not appropriated funding for the program since fiscal year 2019, and DOD did not include RIF in its fiscal year 2020 or fiscal year 2021 RDT&E budget requests. RIF program officials said that DOD uses RIF's original appropriation and provides funds in response to purchase requests based on a project or administrative request, rather than leveraging the flexibility's authority to transfer funds to the RDT&E account of a military department or unified combatant command for special operations forces. Officials said that this approach gives DOD RIF officials more control to reallocate funds across activities. For example, funds may become available for reallocation if activity costs are lower than expected or an underperforming activity is terminated.

Government and industry, small businesses in particular, have raised concerns over the lack of funds to mature technologies enough to be included in an acquisition program or delivered to the warfighter. Military department and OUSD(R&E) Manufacturing Technology officials said that RIF provides such funds and, without RIF, the selected activities would have been delayed or otherwise unsupported. As of July 2022, RIF officials said that 50 percent of activities funded using fiscal years 2017 through 2019 appropriations have transitioned or have plans to transition to operational use. A couple of RIF program managers said that the 50 percent transition rate means they are taking on appropriate risk to achieve innovation, and a higher transition rate would mean that they are not investing in new technologies.

RAA. RAA's use varied from fiscal years 2017 through 2021 because it is used in limited circumstances, as urgent needs generally arise outside of the normal PPBE cycle. Some officials have called RAA "a last resort" because it is used when immediate action is needed and when no other funding source is available. DOD reported using RAA a total of 13 times in fiscal years 2017, 2019, and 2020, each year staying below the limits allowed for each category annually. RAA users needed to identify funds from any existing DOD appropriations to acquire available solutions or products requiring minimal development to fulfill the urgent requirements. For example, a Marine Corps official said that they identified unused O&M dollars from a lower priority activity to purchase an available uncrewed aircraft system from industry to address an urgent operational need.

RAA users said that other funding mechanisms, such as reprogramming, could support urgent or emerging needs. However, officials we spoke with said that other funding mechanisms can take too long to execute and solutions risk becoming irrelevant when addressing immediate needs.

BA-8. DOD received fiscal year 2021 RDT&E funds for eight software development programs in the pilot program. These participating programs represented several departments across DOD and varied in size. DOD reported fiscal year 2021 funding for participating programs ranged from approximately \$11 million at some departments to \$230 million at others. DOD's internal selection criteria included that nominated programs had to



previously have been fully-funded and preference was given to programs already participating in separate, Agile-related pilot programs. DOD proposed adding other programs to the BA-8 pilot in its subsequent budget requests. However, according to the report accompanying fiscal year 2023 defense appropriations, the appropriation committees' agreement encouraged DOD to stop proposing additional programs until it first demonstrated its ability to collect quantitative data on performance improvements provided by the pilot program.

According to DOD, effective software engineering typically requires concurrent technical work addressing bug fixes and existing vulnerabilities while developing new capabilities. These tasks may map to different appropriation categories based on statute and DOD financial regulations. However, BA-8 allows approved programs to use RDT&E funds for tasks that might otherwise be covered under multiple, separate appropriation categories. According to OUSD(A&S), BA-8 is not viewed as a "silver bullet." While it helps address some challenges for adopting commercial software development practices, it will not resolve all issues. OUSD(A&S) officials explained that a program office can use multiple appropriation categories when developing software using an Agile approach, but the flexibility to use one appropriation category can make it easier.

Lab Modernization. Lab Modernization was the least used of the selected flexibilities, funding three Air Force construction activities in fiscal year 2020. DOD requested and received \$111 million of the maximum \$150 million that the flexibility allows in any fiscal year. Its use, similar to RAA, is at DOD's discretion. DOD must include Lab Modernization military construction projects in the annual budget submission to Congress. Users of this flexibility must adhere to MILCON planning and reporting procedures, such as completing a planning and estimate document included in DOD's request for construction funding.

Some officials we spoke with expressed concerns about this flexibility, indicating that infrequent use could be due to funding procedures and noted that requests to use this flexibility could negatively affect labs' funding. For example, a request to use RDT&E funding for a construction project that otherwise would use MILCON funding could give the impression that a lab does not need the RDT&E funding for its non- construction R&D efforts. In addition, some officials said that there was confusion because, when the Air Force used the flexibility, the funds were provided using MILCON instead of RDT&E funding. Further, in a report, the Senate Appropriations Committee stated that it supported the activities DOD proposed using the flexibility and understood DOD's challenge in prioritizing small but critical lab construction projects. However, it encouraged DOD to request MILCON funds rather than RDT&E funds as allowed by the flexibility. According to Air Force officials, the department's MILCON approval processes take too long to meet high-priority RDT&E construction needs. For example, Air Force officials said that it could take between 5 to 15 years to get a project through the military department's approval process.

Planning, Guidance, and Institutional Support Enabled DOD's Use of Flexibilities, But Users Faced Challenges with Some Flexibilities

Based on our analysis of interviews with users of the five selected financial flexibilities, we identified three factors—(1) planning, (2) guidance, and (3) institutional support—that enabled effective use of the flexibilities.

Planning. This factor refers to actions that DOD officials took prior to using a selected flexibility. DOD and military department officials described planning as critical to leveraging each of the five flexibilities. Specifically, planning helped officials align flexibility activities with agency priorities, structure activities to meet desired outcomes, mitigate externalities



hindering the use of flexibilities, and combine the selected financial flexibilities with other authorities, such as direct hire authority and other transaction authority, to optimize their use. For example, officials from all three military departments stated that planning helped align FLEX-4 minor military construction or repair of laboratory infrastructure and equipment activities with their modernization priorities. To that end, Army officials told us that they built the Robotics Research Collaboration Campus with FLEX-4 funding to provide expanded capabilities for the experimentation and testing of autonomous systems— a DOD modernization priority—at a more accessible location. Moreover, military department officials noted problems associated with delays in the availability of funding needed to initiate new projects using the financial flexibilities. Some of these officials stated that delays in using the new budget activity led to the program offices having to use an alternate approach while a continuing resolution was in effect and dealing with financial systems processes afterwards. Planning can help officials decide how to execute funding and structure their projects to accommodate such delays.

Guidance. This factor refers to the availability of formal documentation that specifies roles, responsibilities, and procedures for using a flexibility. DOD or military departments established guidance for four of the five selected flexibilities. Appendix III lists the primary guidance associated with each flexibility. There is no formal guidance governing Lab Modernization, and potential users of the Lab Modernization flexibility told us that they were unsure how to use it. For example, Air Force Research Laboratory officials said that they did not use this flexibility, in part, because of difficulty in understanding how to use it. Air Force Test Center officials used the flexibility but said the lack of guidance made obtaining approvals more difficult. Specifically, a Test Center official said that they had to educate staff in numerous other DOD organizations each time the Test Center attempted to use the flexibility. Further, guidance could clarify for officials when to use this flexibility in-lieu of requesting MILCON. An official within OUSD(R&E) told us that they informed potential users of this flexibility in the past but did not provide guidance. They said that the language of the flexibility is self-explanatory and they had not received requests for clarification. However, the agency is responsible for identifying departmental procedures for using the flexibility, such as the organizations responsible for approving its use. After we brought the lack of guidance to OUSD(R&E)'s attention, an official said that they plan to issue policy for Lab Modernization in fiscal year 2023.

Standards for Internal Control in the Federal Government states that management should communicate quality information down and across reporting lines to enable personnel to perform key roles to achieve objectives, address risks, and support the internal control system. Our past work has also recommended DOD develop guidance for using flexibilities, such as RAA, which it did. Guidance could facilitate DOD's use of Lab Modernization to expedite construction efforts in accordance with this authority and address any questions about approvals or the flexibility's relationship with MILCON funding.

Institutional support. This factor refers to having organizational leaders or officials who work directly with programs using the flexibilities advocate or provide the management and organizational infrastructure to facilitate their use. DOD and military department officials using the five selected flexibilities described institutional support as an enabling factor.

- **Advocacy.** DOD and military department leaders have demonstrated support through consistent, and in some cases, increased, resources for some flexibilities. Air Force, Army, Navy, and OUSD(R&E) officials described FLEX-4 as critical to DOD's modernization and technological advances. For example, Navy officials stated that FLEX- 4 fostered collaboration between experts in modeling and simulation as well as artificial intelligence to learn how coordination of autonomous vehicles perform in



a variety of tactical scenarios. With BA-8, DOD leaders proposed the flexibility to Congress in DOD's Fiscal Year 2021 budget request and, in 2021, DOD received authority to pilot eight BA-8 programs. DOD requested pilot expansion in subsequent years that could help DOD better understand the use of BA-8 and knowledge acquired across different software programs that used the flexibility.

- Management and organizational infrastructure. According to multiple users, the Joint Rapid Acquisition Cell within DOD played an important role in facilitating the military departments' use of RAA. For example, a Marine Corps official said that Joint Rapid Acquisition Cell support staff was helpful in moving the Marine Corps' requirement through the RAA process and ensured that the RAA package was appropriately staffed. FLEX-4 users across the Air Force, Army, and Navy also described knowledgeable officials within the labs they could turn to with questions about the process for proposing activities for FLEX-4 funding and for support when using the flexibility. At the local level, an official at Edwards Air Force Base advocated for the Lab Modernization flexibility and, despite the lack of guidance, developed procedures for using it to support test center construction at three locations.

By comparison, we identified a lack of institutional support in the RIF program. For example, DOD did not include RIF in its Fiscal Year 2020 or Fiscal Year 2021 RDT&E budget requests, and Congress did not appropriate funding for it. A DOD official stated that DOD senior leadership did not support RIF as a funding priority at that time but anticipated DOD leadership may include RIF in future budget requests.

The official explained that previously, leadership may not have fully understood the importance of this program and its effect on the science and technology community, in part, due to the RIF program's lack of reporting on its work. DOD has updated the RIF implementing procedures to emphasize connections to DOD's modernization priorities and identify an office responsible for the program. DOD has also enhanced its guidance and reporting, and developed its organizational infrastructure for reviewing proposals and making awards with an aim of shortening its timelines.

Some officials said that they encountered resistance when using BA-8 and RAA flexibilities because these require deviation from the execution of funding that officials were accustomed to using. For example, a Space Force official using BA-8 said that both experienced and junior financial management staff were hesitant to use the RDT&E budget activity for sustainment or procurement activities because the flexibility goes against established procedures or they were unfamiliar with what the flexibility allowed. In contrast, institutional support helped address resistance that could discourage or slow flexibility use. For example, a DOD official working on another BA-8 program described an environment in which the entire program office, including financial management staff, were committed to making this flexibility work. They said that staff acquired expertise and familiarity with what the flexibility allowed, helping them to maximize benefits of BA-8.

DOD Used Selected Flexibilities to Accelerate Funds to R&D Efforts

According to the users of the five flexibilities who we interviewed, the flexibilities' use allowed them to address R&D and emerging needs more quickly by avoiding certain steps in the PPBE process. Agency officials stated that, because the PPBE process can take several years to make funds available for use, innovation opportunities or emerging needs can be difficult to address.

The flexibilities supported users' efforts to revitalize or refurbish labs and test centers, begin early research, mature technologies to transition into programs, and promote software development, among other things.

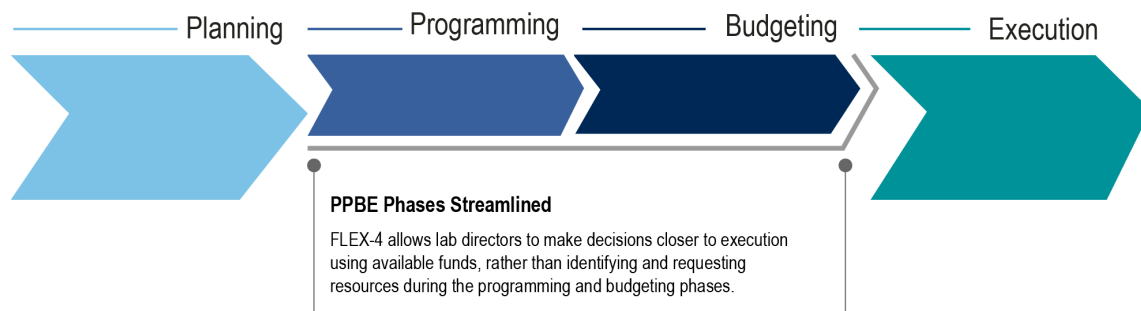


Agency officials who used the flexibilities said that without them, their projects would have experienced delays, delivered less capability to address a need, or run the risk of being unfunded.

Below are high-level summaries of each selected flexibility, including DOD identified benefits; the PPBE phases streamlined; and examples of the contributions to research, development, innovation, and modernization.

Overall, DOD and agency officials said that FLEX-4 contributes to innovation, the military departments' modernization, and national defense strategy by expanding knowledge. Officials said FLEX-4 also increases the capacity and size of the workforce and creates opportunities to explore, develop, and test new technologies and their potential uses. Further, it streamlines parts of the PPBE process (see fig. 3).

Allows laboratory (lab) directors to make timely resourcing decisions, according to DOD, based on lab-specified needs to support: a) basic or applied research, b) efforts that support technology transition, c) workforce development, or d) lab revitalization or refurbishment.



Source: GAO analysis of United States Code and Department of Defense (DOD) information. | GAO-23-105822

Figure 3: Funding Laboratory Enhancements Across Four Categories (FLEX-4) Benefit and Planning, Programming, Budgeting, and Execution (PPBE) Phases

Specific examples officials identified include:

- **Expanded research and testing opportunities.** Air Force, Army, and Navy officials said that FLEX-4 positions labs to conduct current and future research and testing. For example, Air Force officials for the Enriched Understanding of Hypersonic Materials activity said that the flexibility is supporting hypersonic material testing and simulation efforts. They are testing materials and developing prediction models that will help inform the next generation of materials. Without FLEX-4, officials said that the activity would be delayed several fiscal years.
- **Workforce development opportunities.** Navy and Army officials said that FLEX-4 increased workforce development opportunities. For example, Army officials said that the Distinguished Postdoctoral Fellowship and Research Associateship Program helps bring in top-level scientists and engineers to better address the Army's innovation and modernization needs. These participants can introduce new techniques to a lab and expand lab relationships with universities.
- **Seed funding for early research.** Army and Air Force officials said that FLEX-4 provided funding for future efforts. For example, the Army used FLEX-4 funding to jump-start its Emerging Overmatch Technology activity. Army officials said that the flexibility was critical in maturing the technology and demonstrating the uncrewed aircraft systems' ability to achieve cooperative protection for small units of combat

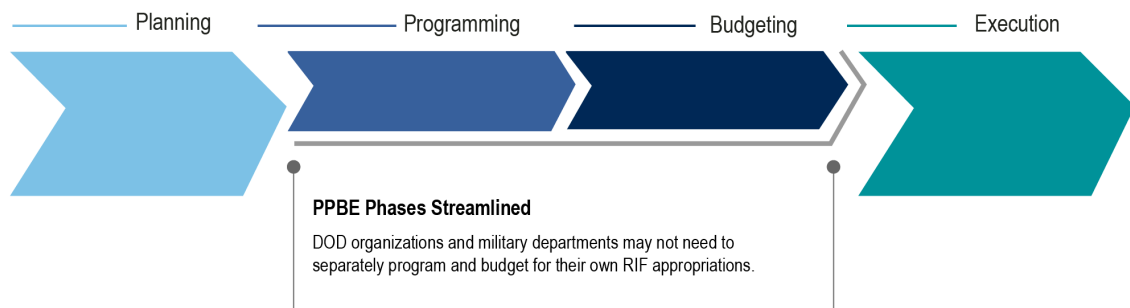


vehicles. As a result, they said that the Army has requested funding through the PPBE process to further develop this technology.

- **Investment in lab infrastructure.** Air Force, Army, and Navy officials said that FLEX-4 provided critical funding for lab infrastructure, ranging from investing in equipment to refurbishing and renovating buildings. Air Force officials said that FLEX-4 is meant to help the labs keep pace with some infrastructure needs, despite what they view as a lack of prioritization for DOD R&D infrastructure, which they said is a strategic issue for the department. However, officials from each of the military departments said that the \$6 million cap on minor military construction limits the types of investments labs can make for repair or minor military construction of laboratory infrastructure and equipment. Since we spoke with these officials, Congress increased the cap to \$9 million.
- **Increased collaboration with program offices, within the labs, and with outside entities.** Army and Navy officials said that their use of FLEX-4 provided opportunities for collaboration within their military departments and with industry. The Army used FLEX-4 funds to construct facilities with convenient and collaborative spaces, and the Navy used FLEX-4 funds to support cooperative agreements with industry. In both situations, agency relationships benefitted from the availability of the funds, resulting in time and cost savings. For example, Ship-to-Shore Navy officials said that they collaborated with other warfare centers and industry partners to develop a water-based, small, uncrewed surface vehicle—which served as a proof of concept for similar technologies. Navy officials said that industry partnerships provided additional expertise and the prototype vehicle used. Further, the team received important feedback from potential users following the demonstrations, which we have previously identified as a leading practice when developing new technologies.

The RIF flexibility allows DOD to transfer available funding to expedite support for further developing technologies that solve operational challenges and contribute to addressing national security needs. RIF funded awards that aim to transition technologies to military programs. It offers opportunities to streamline the PPBE process (see fig. 4).

Allows DOD to transfer available funds to the research, development, test, and evaluation accounts of military departments, defense agencies, and special operations forces. This transfer authority is in addition to other transfer authorities. RIF supports the development of innovative and promising technologies.



Source: GAO analysis of United States Code and Department of Defense (DOD) information. | GAO-23-105822

Figure 4: Defense Research and Development Rapid Innovation Program, also known as Defense Rapid Innovation Fund (RIF) Benefit and Planning, Programming, Budgeting, and Execution (PPBE) Phases

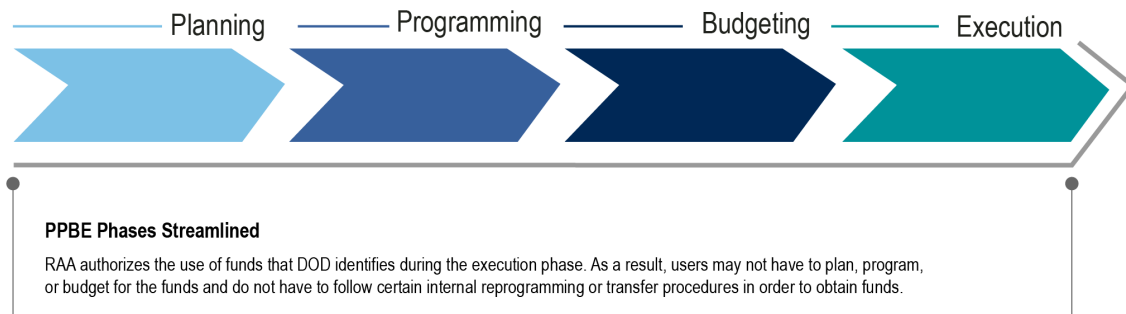
Specific examples of benefits officials identified include.



- **Assisted technology transition.** OUSD(R&E) and Navy officials said that the RIF program provides funding to bridge experimental research and acquisition programs. For example, a Navy official said that, when the Rapid Acquisition Sensor and Response activity first received RIF funding, the technology to track submarines was at the early lab development phase, but has since moved to operational environment testing. They said that the activity’s technology now has a program office to sponsor its transition into a program of record. The Navy official said that the maturation of the technology or the interest in the activity by a program of record would not have been possible without RIF support.
- **Informed future strategies.** An Army official said that RIF activities that do not transition to a program of record can help inform future efforts. For example, they said that the results from the Mobile Ad-Hoc Networking in Congested and Contested Environments Prototype’s activity assessment, which included potential users, provided valuable information for shaping other network design goals. Additionally, the technology remains a consideration for future communication capabilities.

According to DOD officials, RAA is beneficial in cases where there are insufficient resources to address an urgent need, such as preventing loss of life. It also streamlines parts of the PPBE process (see fig. 5).

Allows DOD to quickly access funds to urgently acquire and deploy capabilities to eliminate deficiencies that have resulted in or will result in combat casualties, could result in loss of life or mission failure, or to eliminate a deficiency caused by a cyberattack; or to initiate a project to address compelling national security needs requiring the initiation of a rapid prototyping and fielding effort.



Source: GAO analysis of relevant defense authorization acts and Department of Defense (DOD) information and interviews. | GAO-23-105822

Figure 5: Rapid Acquisition Authority (RAA) Benefit and Planning, Programming, Budgeting, and Execution (PPBE) Phases

Specific examples of benefits officials identified include:

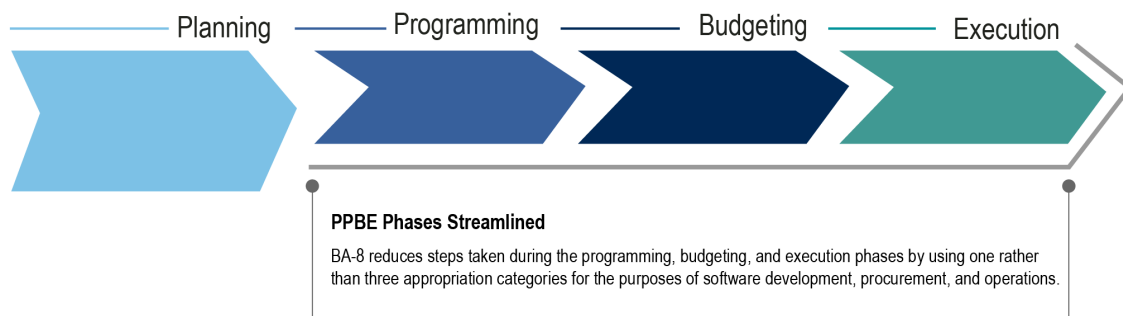
- **Reduced internal barriers in meeting urgent or emergent needs.** Air Force, Army, and Marine Corps officials said that they could have addressed certain needs without RAA, but officials would not have been able to obtain the solution quickly enough, or at the speed of relevance, to meet their urgent or emergent needs. For example, Army officials for the Counter-Small Unmanned Aircraft Systems activity said that they could have used reprogramming, but to do so would have taken 1 to 2 years longer.
- **Solutions met immediate needs and provided enduring capability.** Army, Marine Corps, and Air Force officials said that there were limited solutions available to address different emerging needs, which resulted in using or building on existing solutions in the commercial sector to develop or procure a new capability that could



be used in other situations going forward. For example, Air Force officials said that the COVID-19 airlift activity not only met the urgent need for transporting COVID-19 patients while keeping the crew safe, it is available to transport patients with other deadly diseases.

Officials said that benefits of BA-8 are primarily related to time and labor savings by staff spending less time on administrative activities, such as programming and budgeting for multiple appropriations. BA-8 streamlines parts of the PPBE process (see fig. 6).

Allows DOD to use a single research, development, test, and evaluation (RDT&E) budget activity to cover RDT&E expenses as well as procurement and operation and maintenance expenses related to certain software and digital technology programs. According to DOD, this reduces administrative time that would be invested in programming, budgeting, and executing multiple budget requests, allowing increased team focus on capability development; increased ease and ability to obtain software licenses; and decreased budgeting risks.



Source: GAO analysis of relevant defense appropriations acts and Department of Defense (DOD) information and interviews. | GAO-23-105822

Figure 6: Software and Digital Technology Pilot Programs, also known as Budget Activity Eight (BA-8) Benefit and Planning, Programming, Budgeting, and Execution (PPBE) Phases

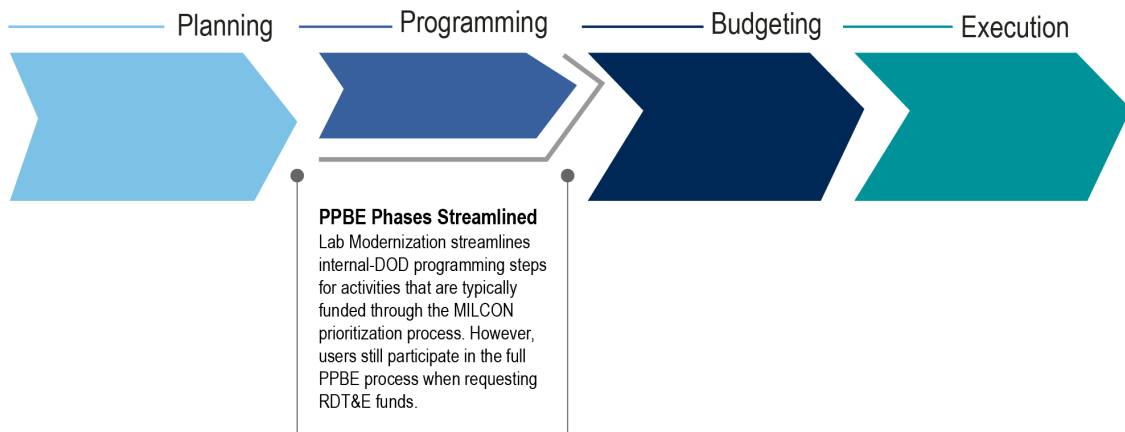
Specific examples officials identified include:

- Increased focus on developing capabilities. Space Force and Army program officials said that BA-8 allowed their teams to focus more on providing capabilities to users, such as tools to detect cyber threats on department networks, rather than on activities or steps that occur during the programming or budgeting PPBE phases. For example, Space Force program officials said that BA-8 allows them to operate with lean financial management staff focusing more resources on the technical aspects of the program.
- Solutions that better align with customer and capability needs. Army and Space Force program officials said that BA-8 helped when program requirements shifted from needing to buy a renewal license to purchasing new software. Without flexible funds, these officials said that they would have likely selected a solution based on available funding options rather than using BA-8's available funding to find a solution that best met program needs.
- Reduced budget risk for program offices. Navy program officials said that they would not have accurately predicted RDT&E needs when creating their BA-8 program's fiscal year 2022 budget request. During execution, they told us that they learned the software needed significantly more development than previously expected. Without the flexibility offered by BA-8 to pivot between development and maintenance efforts, officials said that they would have delivered less capability in fiscal year 2022.

Lab Modernization can allow labs and test centers to build or rehabilitate facilities to operate using the latest technology. It also streamlines part of the PPBE process (see fig. 7).



Allows DOD to use research, development, test, and evaluation (RDT&E), rather than military constructions (MILCON), funds for the purposes of building or revitalizing certain facilities, such as labs and test centers. By using RDT&E appropriations, RDT&E decisionmakers compare proposed activities against RDT&E needs thereby reportedly avoiding competition with other MILCON activities and the resulting, lengthy programming process.



Source: GAO analysis of relevant defense authorization and appropriations acts and Department of Defense (DOD) information and interviews. | GAO-23-105822

Figure 7: Defense Laboratory Modernization Program (Lab Modernization) Benefit and Planning, Programming, Budgeting, and Execution (PPBE) Phases

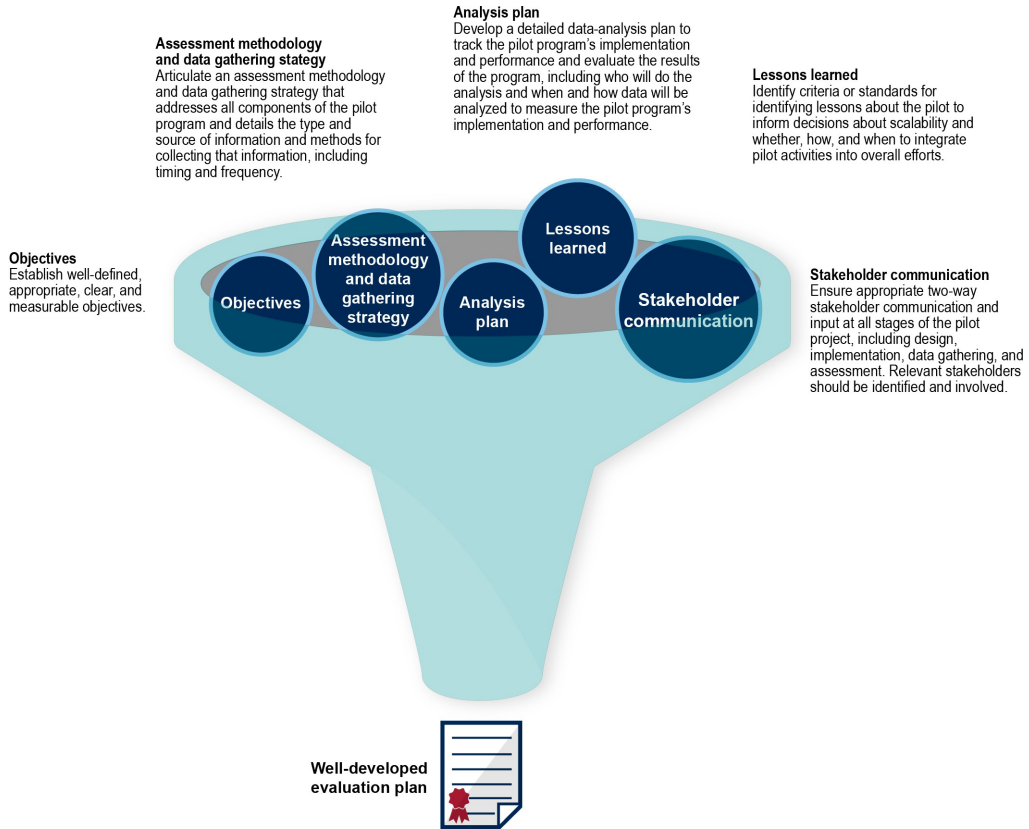
Officials identified that Lab Modernization also:

- Provided a funding path for lab and test centers that would otherwise not be available. Air Force officials said that RDT&E projects do not compete well in the MILCON process or rate highly on the prioritization list. They explained that construction addressing the health and safety of the service members and their families are higher priorities in the budget process. The Air Force used Lab Modernization to construct a Joint Simulation Environment facility at Edwards Air Force Base. This facility provides new testing capabilities for the F-35 Lightning II and other aircraft for entities across DOD. Air Force officials said that, without Lab Modernization, the construction of the facility would not be possible as there would not have been a funding path to support it.

BA-8 Financial Flexibility Partially Met Leading Practices

We found DOD partially met leading practices we identified in prior work related to pilot design for BA-8, the one selected flexibility that is currently a pilot program. Our previous work found that implementing these leading practices for pilot design can help ensure agency assessments of the pilot produce the information needed to make effective program and policy decisions. Such a process enhances the quality, credibility, and usefulness of evaluations, in addition to ensuring time and resources are used effectively. The five leading practices form a framework for effective pilot design and evaluation. Figure 8 summarizes these five leading practices for pilot design.





Source: GAO. | GAO-23-105822

Figure 8: Leading Practices that GAO Identified for Pilot Program Design

Congress established the BA-8 pilot in fiscal year 2021. The pilot identified eight software programs allowed to use the single RDT&E budget activity and eight programs using the traditional appropriation categories—RDT&E, Procurement, and O&M—for comparison. Before implementing the pilot, DOD had to establish metrics and develop a plan for assessing each program using the single appropriation, such as comparing program performance against their own historical performance and a comparison group of eight, traditionally funded programs. DOD was directed to report quarterly on the pilot's progress.

DOD submitted a plan to congressional defense committees for assessing the pilot and developed guidance for implementing the pilot. However, we found that DOD has not fully met the five leading practices for pilot design (see table 4).

Table 4: Software and Digital Technology Pilot Program (BA-8) Partially Met Leading Practices for Pilot Design

Leading practice	GAO assessment (Met, Partially Met, or Did not Meet)
Establish well-defined, appropriate, clear, and measurable objectives	Met
Clearly articulate assessment methodology and data gathering strategies	Partially Met
Document lessons learned	Partially Met
Develop plan to evaluate pilot results	Partially Met
Ensure appropriate stakeholder communication	Partially Met

Source: GAO analysis of Department of Defense information. | GAO-23-105822

Establish well-defined, appropriate, clear, and measurable objectives. OUSD(A&S) is responsible for the BA-8 pilot and established measurable objectives in its implementation



plan, such as BA-8's effect on programs using the single appropriation category. Although OUSD(A&S) officials said that they are adjusting some strategies described in their implementation plan, they expect BA-8's objectives to remain unchanged.

Clearly articulate assessment methodology and data gathering strategies. As of April 2023, OUSD(A&S) officials have not updated their assessment and data collection methodologies. At the start of the BA-8 pilot, OUSD(A&S) outlined metrics for participating programs, including descriptions, frequency, and methods of data collection, in its June 2021 implementation plan and pilot agreements. DOD used these agreements to ensure that mechanisms were in place to provide consistent monitoring and data collection for the pilot. However, the pilot ran for about a year and a half without all programs having agreed to ensure mechanisms were in place. Most participating programs signed their respective pilot agreements in fiscal years 2020 and 2021, but several programs using the traditional funding structure did not fully sign their pilot agreements until early fiscal year 2023. Furthermore, OUSD(A&S) officials said that they have not implemented the methodologies described in those documents. For example, OUSD(A&S) officials said that they realized metrics outlined in the pilot agreements, such as product development time and lead-time for changes, were not consistently measurable across participating programs. OUSD(A&S) officials said that they are in the process of establishing new strategies to better understand BA-8's effect on Agile software development for participating programs.

Document lessons learned. OUSD(A&S) officials said that they generally capture program feedback in a shared drive and ask programs to provide information about their experience. But they have not formally documented lessons learned and do not have plans in place to review lessons if any are collected. DOD plans to share lessons gathered during the pilot in its final report and identified program managers or their designee as being responsible for collecting them. Officials for the four selected BA-8 programs in our review told us that they share insights regarding their use of the new budget activity and participation in the pilot with OUSD(A&S) officials at monthly and quarterly meetings but do not formally collect lessons learned.

Develop plan to evaluate pilot results. OUSD(A&S) detailed its plans to assess the pilot in its June 2021 implementation plan. However, officials told us that they are not consistently collecting the data that would be used in their evaluation and, after consulting with participating programs, cannot use the planned metrics to evaluate the pilot. OUSD(A&S) officials said that they have yet to fully establish or document an updated evaluation plan.

Ensure appropriate two-way stakeholder communication. OUSD(A&S) officials communicate with participating programs on a quarterly and monthly basis, but officials said that affected programs were not involved in the design phase of the BA-8 pilot. OUSD(A&S) officials said that engaging stakeholders during BA-8's development might have helped them avoid using metrics that were not applicable for some programs.

In addition, OUSD(A&S) is in the process of responding to congressional concerns about the adequacy of its required quarterly reporting.

OUSD(A&S) is required to provide updates on the pilot's progress, but OUSD(A&S) officials said that the reports they provided were anecdotal and did not clearly address the Senate Appropriations Committee's requests for quantitative data. OUSD(A&S) officials said that members of Congress raised concerns about OUSD(A&S)'s reporting in November 2021 and did not want to add more programs without data to support claims about the pilot's effect. Further, the explanatory statement accompanying DOD's fiscal year 2023 appropriations encouraged DOD to refrain from submitting additional pilot programs until



DOD can demonstrate its ability to provide data on performance improvements. OUSD(A&S) officials told us that they are working through potential solutions but have yet to establish new procedures or plans to analyze collected data. As OUSD(A&S) continues to adjust its strategies, incorporating the elements of a well-developed evaluation plan would better position DOD to provide more informative updates to Congress regarding the effectiveness of the pilot.

DOD has an opportunity to build on knowledge obtained over the past 2 years through interactions with stakeholders and address congressional concerns by using the leading practices for pilot design. Without a well-developed evaluation plan, including strategies for assessing lessons learned and BA-8's effect on participating programs, DOD and Congress will lack the information needed to assess the effectiveness of the pilot and whether this financial flexibility should be made permanent.

Conclusions

With research and development efforts, innovation and technology evolution can stem from bursts of sporadic insight that occur outside the PPBE cycle. DOD seeks to quickly identify and pursue promising emerging technologies for its innovation and modernization purposes, in part, by leveraging opportunities to streamline its lengthy PPBE process. Congress has provided a set of flexibilities to help DOD be more agile; however, the department could do more to take full advantage of them. DOD could use our work as a starting point for regularly communicating and disseminating information about the most recently available flexibilities and provide regular updates on any changes Congress may make to existing or new flexibilities. With easily-accessed information available department-wide, DOD would be better positioned to identify opportunities to leverage the flexibilities and the value they provide. In addition, having guidance on how to use these flexibilities could help DOD maximize their use. Furthermore, for pilot programs, implementing a well-developed evaluation plan can help DOD know what effect changes from its normal operations are having, whether they are generating the anticipated benefits, and whether there is a good business case to make the changes permanent.

Recommendations for Executive Action

We are making the following three recommendations to the Secretary of Defense:

The Secretary of Defense should ensure the Deputy Secretary of Defense designates a primary office responsible to regularly collect current information about the financial flexibilities that are available to support DOD's research and development, innovation, and modernization efforts and ensures the office makes the information easily accessible department-wide. (Recommendation 1)

The Secretary of Defense should ensure the Under Secretary of Defense for Research & Engineering develops guidance for the Defense Research Laboratory Modernization program that communicates the purpose, roles and responsibilities, time frames, procedures, and other relevant information needed to effectively implement this flexibility. (Recommendation 2)

The Secretary of Defense should ensure the Under Secretary of Defense for Acquisition & Sustainment implements an evaluation plan, developed using leading practices for pilot design for assessing the effectiveness of the Software and Digital Technology Pilot Programs, also known as Budget Activity Eight (BA-8). (Recommendation 3)





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