



November 2021

DEFENSE ACQUISITIONS

DOD Should Take Additional Actions to Improve How It Approaches Intellectual Property



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DOD Should Take Additional Actions to Improve How It Approaches Intellectual Property

November 2021

Highlights of [GAO-22-104752](#), a report to congressional committees

Why This Matters

The Department of Defense (DOD) acquires and licenses intellectual property (IP)—such as computer software and technical data—for its cutting-edge weapon systems. Yet, DOD often does not acquire the IP it needs to operate and maintain those systems, which can lead to surging costs later. In 2019, DOD assigned specific IP responsibilities to organizations within the department.

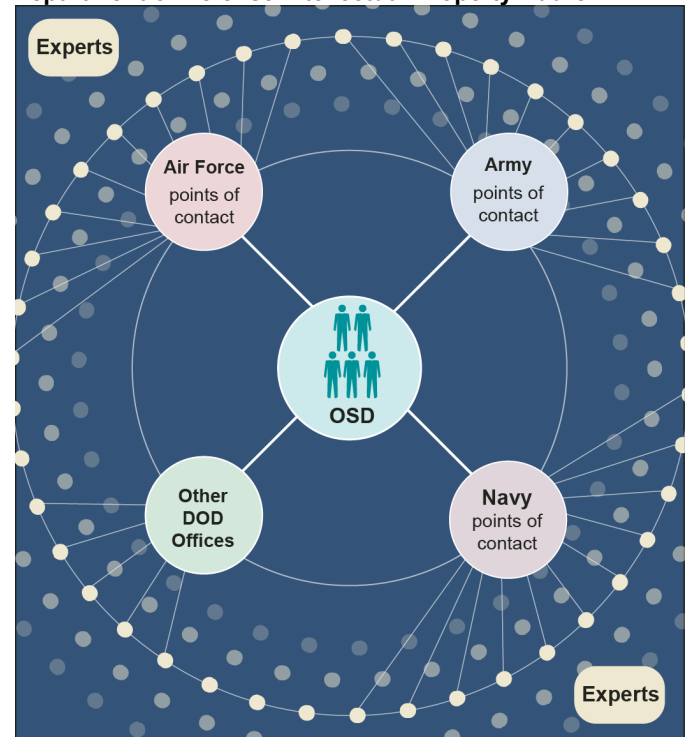
Key Takeaways

DOD organizations are working to meet their assigned IP responsibilities. However, DOD has not fully addressed how the IP Cadre—DOD’s new group of specialized experts—will fulfill all of its responsibilities. The IP Cadre faces uncertainty in these areas:

- **Funding and staffing:** DOD currently plans to provide the Director of the IP Cadre and his team in the Office of the Secretary of Defense (OSD) with funding for five positions through fiscal year 2023. IP Cadre members told us the temporary positions were a disincentive during the hiring process and could present future staffing obstacles.
- **Program support:** The members of the IP Cadre at OSD expect to tap into a larger pool of IP experts across DOD to support program offices by helping them develop IP strategies and negotiate with contractors, among other things. However, DOD has not yet detailed how the Director of the IP Cadre and the OSD team will work with these other experts.
- **Expertise:** DOD officials said the department lacks sufficient expertise in two key areas—IP valuation (determining its worth) and financial analysis. DOD is currently conducting a pilot project to study valuation strategies. However, DOD officials said more work is needed to provide this expertise.

Determining the IP Cadre’s staffing and resource needs will help DOD better position the IP Cadre for success.

Department of Defense Intellectual Property Cadre



OSD Office of the Secretary of Defense

Source: GAO analysis of Department of Defense (DOD) documentation. | [GAO-22-104752](#)

How GAO Did This Study

We reviewed guidance, reports, and documentation on IP issues; interviewed DOD personnel, military officials, and industry groups; and reviewed the existing regulatory and agency frameworks related to IP.

What GAO Recommends

We made four recommendations to DOD, including that DOD should determine the collaboration, staffing, and resources needed across DOD to execute its proposed approach for the IP Cadre. DOD concurred with all four recommendations.

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Abbreviations

| | |
|-----------|--|
| ASD(A) | Assistant Secretary of Defense for Acquisition |
| DACM | Director of Acquisition Career Management |
| DAR | Defense Acquisition Regulations |
| DARS | Defense Acquisition Regulations System |
| DAU | Defense Acquisition University |
| DAWDA | Defense Acquisition Workforce Development Account |
| DFARS | Defense Federal Acquisition Regulation Supplement |
| DOD | Department of Defense |
| DMPD | detailed manufacturing or process data |
| FAR | Federal Acquisition Regulation |
| FY | fiscal year |
| IP | intellectual property |
| IP Cadre | cadre of intellectual property experts |
| MOSA | modular open systems approach |
| OIRA | Office of Information and Regulatory Affairs |
| OFPP | Office of Federal Procurement Policy |
| OMB | Office of Management and Budget |
| OSD | Office of the Secretary of Defense |
| OTA | other transaction authorities |
| OUSD(A&S) | Office of the Under Secretary of Defense for Acquisition and Sustainment |
| USC | United States Code |

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November 30, 2021

Congressional Committees

The Department of Defense (DOD) acquires and licenses intellectual property (IP)—including technical data, computer software, and user manuals—from companies to operate and maintain its cutting-edge weapon systems and other equipment it purchases. Acquiring and licensing IP is critical for ensuring these systems and equipment remain functional, sustainable, upgradable, and affordable. Additionally, we previously reported that companies told us intellectual property is essential to their survival, calling it the life-blood of their enterprise.¹ As such, transactions that affect the ownership, control, or transfer of IP can have enormous implications for parties on both sides.

Over the past 3 decades, we reported on some of the consequences of DOD not acquiring IP for weapon systems, including reduced mission readiness and surging sustainment costs. For example, in July 2021, we reported that technical data issues have negatively affected mission readiness for the F-35 program.² Specifically, we found that key engine repairs took longer than expected, in part, because the technical data available to maintenance providers was insufficient for the level of maintenance required. In March 2020, we also reported that a lack of technical data contributed to sustainment problems for several Navy ship programs, and that focusing on sustainment issues—such as determining needed IP and acquiring it earlier in the acquisition process—could save billions of dollars.³

Congress has directed DOD to take several steps in recent years to try to improve how the department acquires IP. For example, the Fiscal Year 2018 National Defense Authorization Act (NDAA) directed DOD to establish an IP acquisition or licensing policy and a cadre of IP experts

¹GAO, *Military Acquisitions: DOD Is Taking Steps to Address Challenges Faced by Certain Companies*, [GAO-17-644](#) (Washington, D.C.: July 20, 2017).

²GAO, *F-35 Sustainment: DOD Needs to Cut Billions in Estimated Costs to Achieve Affordability*, [GAO-21-439](#) (Washington, D.C.: July 7, 2021); and *F-35 Sustainment: Enhanced Attention to and Oversight of F-35 Affordability Are Needed*, [GAO-21-505T](#) (Washington, D.C.: Apr. 22, 2021).

³GAO, *Navy Shipbuilding: Increasing Focus on Sustainment Early in the Acquisition Process Could Save Billions*, [GAO-20-2](#) (Washington, D.C.: Mar. 24, 2020).

(IP Cadre).⁴ Subsequently, in October 2019, DOD issued an overarching IP Instruction, which establishes IP-related responsibilities for specific DOD officials and organizations, including the IP Cadre, military departments, and the Defense Acquisition University (DAU).⁵ DAU is responsible for providing acquisition training, educational resources, and a learning platform to DOD personnel.

In the Fiscal Year 2021 NDAA, Congress included a provision for us to review DOD's efforts to improve IP acquisitions and licensing.⁶ This report (1) examines issues addressed in DOD's IP Instruction, (2) examines the extent to which DOD has implemented the IP Instruction, (3) assesses DAU's efforts to improve IP training, and (4) describes DOD's efforts to develop a capability to track the IP the department has acquired and licensed.

To examine issues addressed in DOD's IP Instruction, we reviewed the instruction and compared its content to the requirements in the statutory and regulatory framework for DOD's IP acquisitions. This framework includes applicable provisions of Title 10 of United States Code, the Federal Acquisition Regulation (FAR), and the Defense Federal Acquisition Regulation Supplement (DFARS).⁷ We also reviewed prior and current DOD IP guidance and reports to Congress on IP issues, including past and current iterations of DOD's overarching acquisition instruction (DOD Instruction 5000.02).⁸ We reviewed the extent to which

⁴National Defense Authorization Act for Fiscal Year 2018, Pub. L. No. 115-91, § 802.

⁵For the purposes of this report, the "acquisition of intellectual property" includes the acquisition of technical data rights in manuals, drawings, and reports, and other technical material, computer software, and any licenses. For example, see DOD Instruction 5010.44, *Intellectual Property Acquisition and Licensing* (Oct. 16, 2019), pg. 3.

⁶National Defense Authorization Act for Fiscal Year 2021, Pub. L. No. 116-283, § 839.

⁷The FAR was established for the codification and publication of uniform policies and procedures for acquisition by all executive agencies. FAR 1.101. The DFARS implements and supplements the FAR for DOD.

⁸For example, see Department of Defense (DOD) Instruction 5000.02, *Operation of the Defense Acquisition System* (Jan. 7, 2015) (incorporating Change 4, Aug. 31, 2018). The most recent revision to the DOD Instruction 5000.02 was effective January 23, 2020. Department of Defense, *Report to Congress On Pilot Program on Intellectual Property Evaluation for Acquisition Programs Section 801 of the National Defense Authorization Act for Fiscal Year 2020* (March 2021); *Report to Congress on Intellectual Property Policy and the Cadre of Intellectual Property Experts Section 838 of the National Defense Authorization Act for Fiscal Year 2020* (April 2020); and *2018 Report Government-Industry Advisory Panel on Technical Data Rights* (Nov. 13, 2018).

the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD (A&S)) solicited and incorporated stakeholder input on the IP Instruction. To do this, we reviewed the formal comments received during the development of the draft instruction, and interviewed the Director of the IP Cadre and representatives from DOD's acquisition, sustainment, and innovation communities. We also reviewed the public comments provided for eight proposed DFARS rule changes involving IP, which were almost all directed by NDAA's from fiscal years 2012 to 2021.⁹

Additionally, to obtain perspectives on IP issues and challenges and identify input provided to DOD on the IP Instruction, we interviewed DOD officials responsible for implementing the IP Instruction, including Army, Air Force, and Navy officials tasked with supporting IP licensing and acquisitions, and sustaining weapon systems. We interviewed representatives from a nongeneralizable sample of six industry groups representing small, large, traditional, and non-traditional contractors including: (1) Aerospace Industries Association; (2) National Armaments Consortium; (3) National Defense Industrial Association; (4) National 8(a) Association; (5) Professional Services Council; and (6) Small Business Technology Council. The information and communication component of internal control—management's use of quality information to support the internal control system—was significant to this objective, along with the related principle that management should internally communicate the necessary quality information to achieve the entity's objectives. We assessed the extent to which the DOD IP instruction communicates necessary quality information to interpret and explain IP-related regulations and policies.

To examine the extent to which DOD has implemented the IP Instruction, we reviewed the responsibilities outlined in DOD's October 2019 IP Instruction and collected and reviewed documentation of how the IP Cadre and other DOD offices are meeting their responsibilities, in part by using a structured checklist.¹⁰ We also reviewed DOD's implementation plans for the IP Cadre outlined in April 2020 and March 2021 reports to Congress and compared them to federal implementation planning

⁹See appendix I for more information on the eight proposed rule changes.

¹⁰We provided structured checklists to OUSD (A&S), DAU, DOD General Counsel, the IP Cadre, and the Departments of the Army, Air Force, and Navy. Representatives from each office completed and returned the checklists during the course of this audit.

guidance.¹¹ We interviewed the members of the IP Cadre and officials from the Army, Air Force, and Navy about their efforts to implement the IP Instruction. Additionally, we interviewed officials from two defense innovation offices that often engage with non-traditional defense contractors—the Defense Advanced Research Projects Agency and the Defense Innovation Unit—and executives from the six industry groups about how implementation of the IP Instruction has affected DOD’s IP acquisitions to date.

To assess DAU’s efforts to improve IP training, we reviewed IP learning resources found on DAU’s IP Community of Practice web portal, as well as DAU’s 5-year strategic plan for improving its IP curricula, which we compared to government-wide guidance for strategic planning.¹² We interviewed DAU officials and members of the IP Cadre about their coordination and efforts to develop tailored IP training for a range of DOD career fields spanning DOD’s acquisition workforce, including training modules and courses containing IP content and mission assistance activities. We also interviewed the Director of Acquisition Career Management (DACM) representatives and other officials at each of the military departments about their roles in ensuring that the workforce receives appropriate IP training. Finally, we attended all seven courses required for DAU’s foundational IP credential and reviewed new training materials on key IP topics.

To describe DOD’s efforts to develop a capability to track the IP the department has acquired or licensed, we reviewed documentation on DOD’s plans to develop and test such a capability. We also reviewed a 2018 report issued by a panel of government and industry experts that described the challenges of not having the capability to track IP.¹³ Additionally, we interviewed DOD officials about the need for such a capability and DOD’s plans to develop it.

We conducted this performance audit from January 2021 to November 2021 in accordance with generally accepted government auditing

¹¹Office of Management and Budget, *Preparation, Submission, and Execution of the Budget*, Circular No. A-11 (August 2021).

¹²Id.

¹³National Defense Authorization Act for Fiscal Year 2016, Pub. L. No. 114-92, § 813. The panel issued its final report, *2018 Report Government-Industry Advisory Panel on Technical Data Rights*, in November 2018. The report examined long-standing tension points between government and industry regarding rights to technical data and made recommendations for legislative, regulatory, and policy changes.

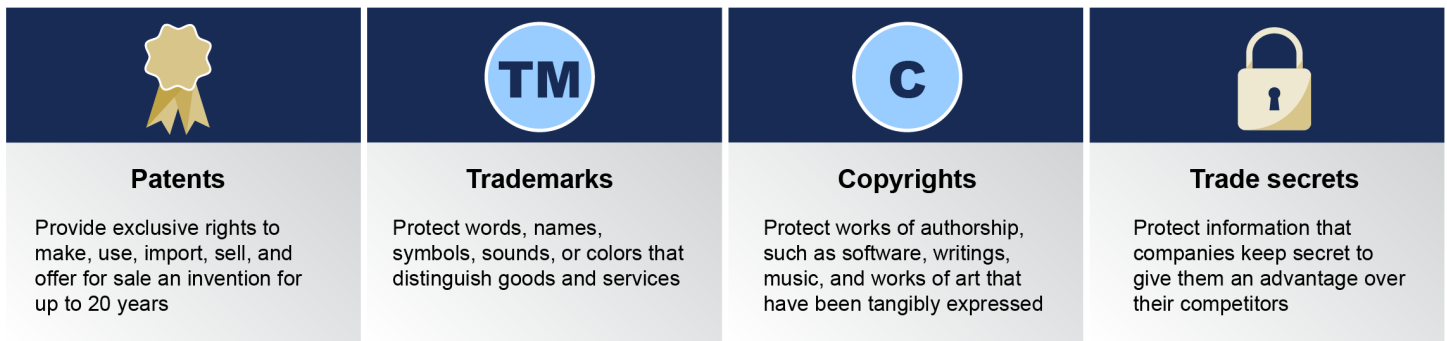
standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Regulations Governing Intellectual Property Categories

Companies protect their IP in several ways, including the use of patents, trademarks, copyrights, and trade secrets.¹⁴ See figure 1 for more details on these types of IP categories.

Figure 1: Types of Intellectual Property



Source: GAO analysis of U.S. Patent and Trademark Office guidance. | GAO-22-104752

Congress has enacted several laws related to IP over the past several decades.¹⁵ For example, in 1980, Congress passed the Bayh-Dole Act, which addressed patent rights in inventions made with federal assistance.¹⁶ The act addressed the rights of small businesses,

¹⁴For additional information, see GAO, *Intellectual Property: Additional Agency Actions Can Improve Assistance to Small Businesses and Inventors*, [GAO-20-556](#) (Washington, D.C.: Aug. 27, 2020); and *Intellectual Property: Industry and Agency Concerns Over Intellectual Property Rights*, [GAO-02-723T](#) (Washington, D.C.: May 10, 2002).

¹⁵For the purposes of this report, we use the definition of intellectual property from DOD Instruction 5010.44: information, products, or services that are protected by law as intangible property, including data (e.g., technical data and computer software), technical know-how, inventions, creative works of expression, and trade names.

¹⁶The Patent and Trademark Law Amendments Act of 1980 (Bayh-Dole Act), 35 U.S.C. §§ 200–211, 301–307.

universities, and other nonprofit organizations and generally gave them the right to retain title to subject inventions, provided they adhered to certain requirements.¹⁷ In 1983, an executive order stated that it granted to all contractors, regardless of size, the title to patents made in whole or in part with federal funds.¹⁸ The following year, Congress passed the Defense Procurement Reform Act, which required that regulations address rights in technical data, including procedures to validate any proprietary data restrictions asserted by contractors.¹⁹

The FAR and DFARS implement these laws and provide the basic regulatory framework governing how DOD may license and acquire contractor IP.²⁰ For example, these regulations describe how the government may obtain technical data rights and licenses to computer software.²¹ In general, using another entity's IP requires permission, and the government typically uses licenses to obtain permission and define the scope of its rights to use a particular contractor's IP. The federal government also obtains data rights when the development of IP was funded by the government—in whole or in part—and the types of data rights obtained by the government generally depend on how the IP was developed and funded.²² Federal acquisition regulations established data rights, which can be organized into three categories (see fig. 2).²³

¹⁷Id. A 'subject invention' was defined as any invention of the contractor conceived or first actually reduced to practice in the performance of work under a funding agreement.

¹⁸President's Memorandum to the Heads of the Executive Departments and Agencies, Government Patent Policy (Feb. 18, 1983); Exec. Order No. 12,591, § 1(b)(4), 52 Fed. Reg. 13,414 (Apr. 10, 1987).

¹⁹Defense Procurement Reform Act, 1984, Pub. L. No. 98-525, § 1201.

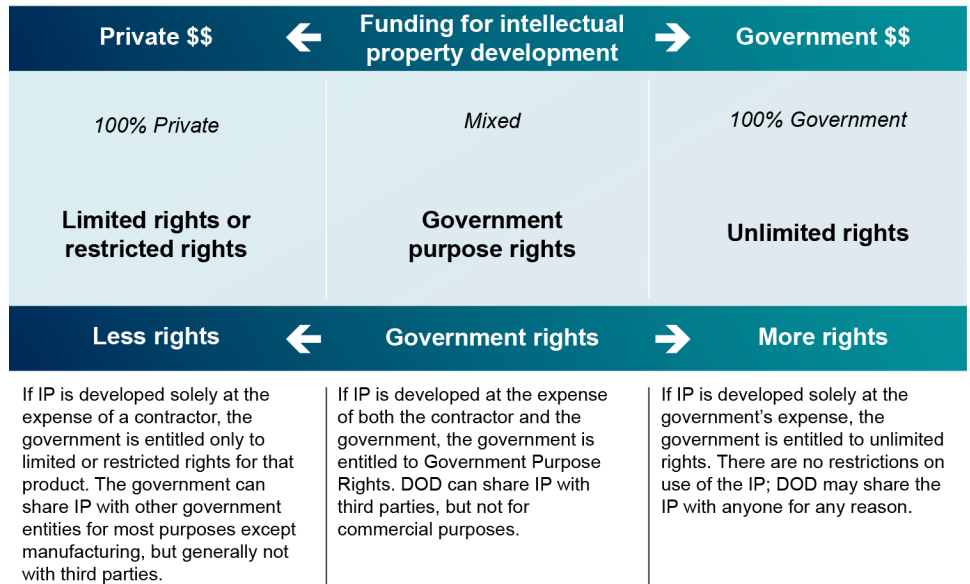
²⁰For example, see 10 U.S.C. §§ 2320 & 2321; DFARS § 252.227.71 (Rights in Technical Data); DFARS § 252.227.72 (Rights in Computer Software and Computer Software Documentation); and DFARS 252.227-7013, -7014, -7015, -7017, -7018, -7019, -7026, -7027, -7030, and -7037.

²¹Technical data includes any recorded information of a scientific or technical nature such as product design or maintenance data and computer software documentation. Computer software includes executable code, source code, code listings, design details, processes, flow charts, and related materials. See DFARS 252.227-7013, -7014.

²²Data rights are also determined by whether the item, process, or software is commercial or non-commercial, and the purpose of the data in question.

²³The government obtains technical data and license rights to use IP assets in accordance with the FAR, agency supplements to the FAR, and any specifically negotiated licenses in the contract. These rights control how the government can use, disclose, or reproduce contractor owned information.

Figure 2: Types of License Rights for Intellectual Property (IP)



Source: GAO analysis of Department of Defense (DOD) documentation. | GAO-22-104752

Note: Table does not represent every license right available to DOD within federal acquisition regulations. "Limited rights" refer to those rights in technical data, and "Restricted rights" refer to those rights in noncommercial software.

Regardless of the source of funding used for IP development, the government obtains unlimited rights to form, fit, and function data and data necessary for operation, maintenance, installation, and training purposes. Not included within those exceptions are detailed manufacturing or process data (DMPD), including the steps, sequences, and assembly used by manufacturers to produce an item.

Recent Congressional Action to Improve How DOD Acquires and Manages IP

In recent years, Congress included numerous requirements in NDAs for DOD to assess and improve how it acquires and manages IP, including technical data needed to manufacture equipment or systems. For example, the Fiscal Year 2016 NDAA directed DOD to establish an advisory panel of industry and government experts—known as the 813 Panel—to provide recommendations to help ensure that statutory and related regulatory requirements pertaining to technical data were structured to best serve the interests of taxpayers and the national defense.²⁴ Among other things, the 813 Panel found that two-thirds of system life-cycle costs typically occur in a system's sustainment phase;

²⁴Pub. L. No. 114-92, § 813.

thus, it is critical for federal agencies to identify the necessary IP and licenses during source selection to thoroughly assess proposals during competition.²⁵

The Fiscal Year 2016 NDAA also directed DOD to commission an independent review of its regulations and practices addressing the use of IP rights of private sector firms, among other things.²⁶ In a May 2017 report to Congress, the Institute for Defense Analyses found that there are often only two or three capable suppliers for key DOD systems, and that providers have a great deal of leverage in IP negotiations once a selection is made.²⁷ The May 2017 report stated that, given the long-term value of these contracts, contractors sometimes bid low under the assumption that they will secure profitable sustainment opportunities in the future. See figure 3 for more information on IP-related provisions from recent NDAs and the resulting actions taken to address these provisions.

²⁵We similarly reported that a weapon system's operating and support costs account for approximately 70 percent of a weapon system's total life-cycle cost. See GAO, *Weapon System Sustainment: Selected Air Force and Navy Aircraft Generally Have Not Met Availability Goals, and DOD and Navy Guidance Need to Be Clarified*, [GAO-18-678](#) (Washington, D.C.: Sept. 10, 2018).

²⁶Pub. L. No. 114-92, § 875.

²⁷Institute for Defense Analyses: *Department of Defense Access to Intellectual Property for Weapon Systems Sustainment* (May 2017).

Figure 3: Key IP-Related NDAA Provisions from Fiscal Years 2016-2021

| | Selected requirements | Outcomes |
|------------------------------------|---|---|
| NDAA FY 2016 Public Law 114-92 | Section 813: Required DOD to establish a government-industry panel to review 10 U.S.C. §§ 2320 and 2321 regarding rights in technical data. | Section 813: Section 813 panel submitted its report to Congress in November 2018. |
| | Section 821: Amended Title 10 by adding § 2431a, requiring acquisition strategies to include IP for major defense acquisition programs, major automated information systems, and major systems. | Section 821: Implemented in the DOD 5000 series guidance. |
| | Section 875: Directed DOD to conduct an independent review and provide a report on its regulations, practices, and sustainment requirements related to government access and use of private sector IP, among other things. | Section 875: Institute for Defense Analyses conducted an independent review, and issued its report in May 2017. |
| NDAA FY 2017 Public Law 114-328 | Section 809: Amended 10 U.S.C. § 2320 regarding technical data rights relating to interfaces, including major systems interfaces, when funded with private or mixed funding. | Section 809: Statutory amendments currently being implemented by several open Defense Federal Acquisition Regulation Supplement cases. |
| | Section 844: Directed DOD to review decisions regarding IP requirements for major defense acquisition programs. | Section 844: MITRE Corporation issued a report in November 2017. |
| NDAA FY 2018 Public Law 115-91 | Section 802: Amended Title 10 by adding § 2322, which directed DOD to develop policy on the acquisition or licensing of IP, and to establish the IP Cadre. | Section 802: DOD Instruction 5010.44 was issued in October 2019, and DOD subsequently established the IP Cadre. |
| NDAA FY 2020 Public Law 116-92 | Section 801: Authorized DOD to conduct a 3-year pilot program to assess mechanisms to evaluate IP. | Section 801: Pilot began and DOD issued the first of three reports to Congress in March 2021. |
| | Section 838: Amended FY18 NDAA § 802, and directed DOD to submit a report that describes the leadership structure of the IP Cadre and the activities and efforts undertaken by the IP Cadre. | Section 838: DOD issued its report in April 2020. |
| NDAA FY 2021 Public Law 116-283 | Section 801: Directed each service acquisition executive to report to Office of the Secretary of Defense leadership on how it is addressing operation and sustainment risks associated with access to IP. | Section 801: DOD issued its report in August 2021. |
| | Section 802: Amended 10 U.S.C. § 2337 to require each applicable system has an approved life-cycle sustainment plan that includes IP. | Section 802: DOD is updating its guidance. |
| | Section 804: Amended 10 U.S.C. § 2320 regarding the type of technical data rights the government will acquire pertaining to modular system interfaces developed either exclusively at private expense or with mixed funding. | Section 804: DOD is updating its guidance and regulations. |

DOD = Department of Defense
FY = Fiscal year

IP = Intellectual property
NDAA = National Defense Authorization Act

OSD = Office of the Secretary of Defense
USC = United States Code

Source: GAO analysis of the National Defense Authorization Acts for Fiscal Years 2016 – 2021. | GAO-22-104752

Note: The information in this figure summarizes relevant aspects of the NDAA sections listed.

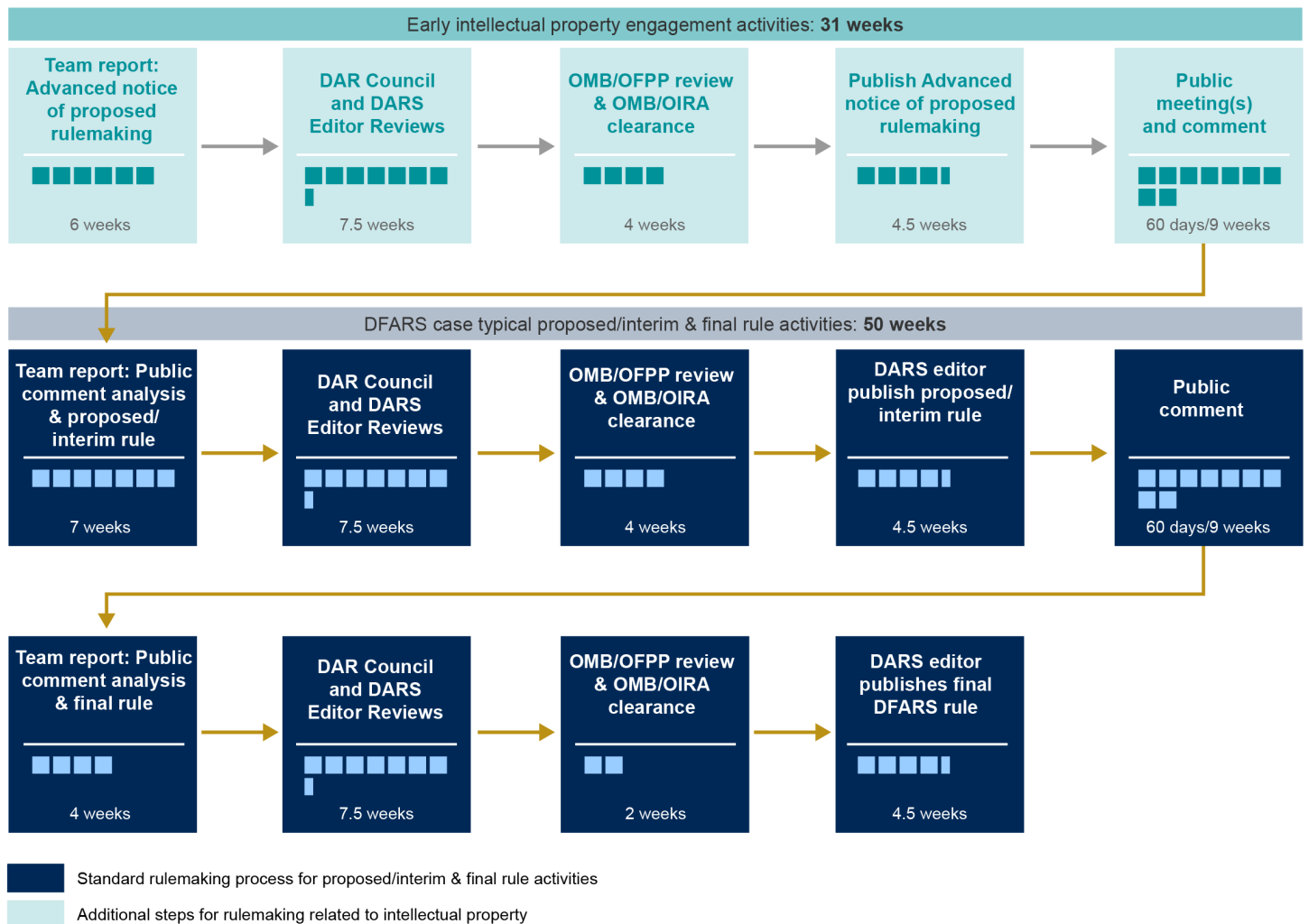
NDAAs provisions, including those related to IP, can result in changes to federal or agency acquisition regulations. Regulatory changes to the FAR and DFARS occur through the federal rulemaking process, which includes opportunities for private sector representatives to provide input on how regulations should be updated. DOD has a dedicated team—the Patents, Data, and Copyrights Team, chaired by the Director of the IP Cadre—that oversees regulatory changes involving IP in the DFARS. That team is currently working on eight proposed regulatory changes related to IP—based mostly on NDAA direction—including changes involving specially negotiated licenses and small business data.²⁸ See appendix I for more detail on the eight ongoing DFARS cases related to IP.

We previously reported that regulatory changes involving complex topics like IP often take longer than DOD’s standard 12-month process.²⁹ DOD extended the time frames of the process to make the DFARS changes recommended by the Section 813 Panel to provide industry and the public additional opportunities to provide input early in the process (see fig. 4).

²⁸A specially negotiated license is required when the standard data rights arrangements defined in the FAR, DFARS, or by a commercial entity are modified by mutual agreement between a contractor and the government.

²⁹GAO, *Defense Acquisitions: DOD Needs to Improve How It Communicates the Status of Regulation Changes*, [GAO-19-489](#) (Washington, D.C.: July 11, 2019).

Figure 4: DOD’s Extended Rulemaking Timeline for Selected Regulatory Changes Involving Intellectual Property (IP)



DAR = Defense Acquisition Regulations
 DARS = Defense Acquisition Regulations System
 DFARS = Defense Federal Acquisition Regulation Supplement
 Source: GAO analysis of DOD documentation. | GAO-22-104752

DOD = Department of Defense
 OMB/ OFPP = Office of Management and Budget Office of Federal Procurement Policy
 OMB/ OIRA = Office of Management and Budget/ Office of Information and Regulatory Affairs

Note: The extended process applies to DFARS changes recommended by an advisory panel of industry and government experts that DOD established in response to the Fiscal Year 2016 National Defense Authorization Act. This panel is commonly known as the 813 Panel.

Prior GAO Reporting

Over the past 30 years, we have reported on the complexities of acquiring IP and associated rights—particularly technical data—for weapon

systems.³⁰ When IP rights are not acquired—because, for example, needs were not assessed—consequences may include sustainment cost growth, maintenance challenges, and the inability to competitively purchase follow-on systems and spare parts. We found that the military departments have experienced each of these consequences due to a lack of technical data or data rights. For example:

- In July 2006, we reported that a lack of technical data rights for several Army weapons systems disrupted sustainment plans intended to achieve cost savings and meet legislative requirements for depot maintenance capabilities.³¹ For example, when acquiring the Stryker family of vehicles, the Army did not obtain technical data rights needed to develop competitive offers for the acquisition of spare parts and components. Following the initial acquisition, the program analyzed alternatives to the contractor’s support strategy and attempted to acquire rights to the manufacturer’s technical data package, which describes the parts and equipment in sufficient technical detail to allow the Army to use competition to lower the cost of parts. The contractor declined to sell the Stryker’s technical data package to the Army. According to an Army Audit Agency report, the project office stated that the cost of the technical data, even if available, would most likely be prohibitively expensive at that point in the Stryker’s fielding, offsetting any cost savings resulting from competition.
- In September 2014, we reported that the F-35 program did not acquire technical data needed to compete a subsequent award of the F-35 or its subsystems under its previously awarded system development contract.³² We also reported that program officials did not have an understanding of the technical data rights DOD owned, what technical data rights it might still need, or how much it would cost

³⁰See GAO, *Defense Acquisition: DOD Should Clarify Requirements for Assessing and Documenting Technical-Data Needs*, [GAO-11-469](#) (Washington, D.C.: May 11, 2011); *Intellectual Property: Agencies Progress in Implementing Recent Legislation, but Enhancements Could Improve Future Plans*, [GAO-11-39](#) (Washington, D.C.: Oct. 13, 2010); *Weapons Acquisition: DOD Should Strengthen Policies for Assessing Technical Data Needs to Support Weapon Systems*, [GAO-06-839](#) (Washington, D.C.: July 14, 2006); [GAO-02-723T](#); and *Defense Procurement: Acquiring Technical Data for Spare Parts Reprourement*, [GAO/NSIAD-91-313](#) (Washington, D.C.: Sept. 13, 1991).

³¹[GAO-06-839](#).

³²GAO, *F-35 Sustainment: Need for Affordable Strategy, Greater Attention to Risks, and Improved Cost Estimates*, [GAO-14-778](#) (Washington, D.C.: Sept. 23, 2014).

to acquire those data rights to support the future sustainment of F-35 aircraft. We recommended that the F-35 program should, among other things, develop a long-term IP strategy that identifies (1) current levels of technical data rights ownership by the federal government, and (2) all critical technical data rights and their associated costs. DOD concurred with the recommendation and stated that the program planned to address these technical data rights issues as part of the program's future sustainment strategy. However, in July 2021, we found that the F-35 program still does not have a comprehensive understanding of the technical data rights it currently owns, what technical data rights it may still need, or how much it will cost to acquire data needed to support F-35 sustainment.³³

- In March 2020, we found that a lack of technical data contributed to sustainment problems for several Navy ship programs, and that focusing on sustainment earlier in the acquisition process could save billions of dollars.³⁴ Navy officials stated they did not have a clear understanding of all the IP needed until ship systems broke and Navy maintainers could not repair the systems with the IP available to them. Navy ship maintainers told us that once a ship is delivered it is often too late to implement strategies or agreements with manufacturers to get the IP needed to fully sustain the ship systems at an affordable price. We made several recommendations to the Navy, including that the Assistant Secretary of the Navy for Research, Development, and Acquisition should ensure that all shipbuilding programs develop and update life-cycle sustainment plans, in accordance with DOD policy, to demonstrate how they will affordably operate and maintain ship classes during sustainment. According to DOD's acquisition policy in place at the time of our review, shipbuilding programs should document IP strategies early in acquisition planning to assess technical data needs and to determine what IP deliverables and license rights the program must acquire from contractors.³⁵ The Navy agreed with this recommendation but has not addressed it yet.

³³[GAO-21-439](#) and [GAO-21-505T](#).

³⁴[GAO-20-2](#).

³⁵DOD Directive 5000.01, *The Defense Acquisition System* (May 12, 2003) (incorporating Change 2, Aug. 31, 2018); and DOD Instruction 5000.02, *Operation of the Defense Acquisition System* (Jan. 7, 2015) (incorporating Change 4, Aug. 31, 2018). The most recent revision to the DOD Instruction 5000.02, *Operation of the Adaptive Acquisition Framework*, went into effect January 23, 2020.

DOD's IP Instruction Highlights Six Core Principles, but Does Not Address DOD's Ability to Obtain Detailed Manufacturing or Process Data

DOD integrated existing IP guidance and requirements, highlighted six core principles, and set a department-wide expectation for DOD personnel to prioritize IP planning early in the acquisition life cycle in its 2019 IP Instruction.³⁶ According to military officials, the IP Instruction is helpful for setting expectations, but it does not address DOD's ability to pursue DMPD, which the department often needs to repair and competitively re-procure its weapons systems.

DOD's IP Instruction Integrated Existing IP Guidance and Requirements, and Highlighted Six Core Principles

In developing the IP Instruction, OUSD (A&S) integrated existing requirements from prior DOD guidance into a single document. The IP instruction applies specifically to IP that is acquired, created by or for, or used by or on behalf of DOD for purposes relating to the acquisition, operation, maintenance, modernization, and sustainment of defense products and services.³⁷ Prior requirements included DOD's 5000 series acquisition guidance and DOD Open Systems Architecture-Data Rights Team IP Strategy Guidance.³⁸ These earlier documents, for example, require program managers to establish and maintain an IP strategy as part of their acquisition planning, and to identify and manage IP-related issues throughout the program's life cycle.

The IP instruction also presented six core principles that are rooted in laws, regulations, and earlier DOD guidance:

1. Integrate IP planning fully into acquisition strategies to account for long-term effects on competition and affordability.

³⁶DOD Instruction 5010.44, *Intellectual Property Acquisition and Licensing* (Oct. 16, 2019).

³⁷DOD Instruction 5010.44 does not apply to patent licensing or other technology transfer of U.S. Government-owned IP or technology covered by DOD Directive 5535.03 and DOD Instruction 5535.8, or branding and trademark licensing by DOD Components covered by DOD Directive 5535.09 and DOD Instruction 5535.12.

³⁸DOD 5000.02, at Enclosure 2, 6(d)(4); DOD Open Systems Architecture-Data Rights Team, *Intellectual Property Strategy Guidance* (August 2014).

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2. Ensure acquisition professionals have relevant IP knowledge for their official duties to support critical, cross-functional coordination during IP acquisition planning.
 3. Negotiate specialized IP deliverables and associated license rights when doing so more effectively balances DOD and industry interests than standard license rights.
 4. Communicate clearly and effectively with industry regarding IP expectations and sustainment objectives.
 5. Respect and protect IP funded by both the private sector and the government.
 6. The government must ensure delivery of IP deliverables and corresponding licenses.

The IP instruction further identified roles and responsibilities for key DOD organizations, and important elements of IP strategies, such as identifying system interfaces and considering use of specially negotiated licenses and modular open systems approaches. It also emphasized a department-wide expectation that DOD personnel should prioritize IP planning early—specifically during the initial phases of the acquisition life cycle—when DOD has the most leverage to obtain the IP rights it needs at a fair and reasonable price through competition.

To develop the IP Instruction, OUSD (A&S) indicated that it solicited input from relevant DOD offices, including acquisition and sustainment offices from each of the military departments. OUSD (A&S) also established an IP working group that reviewed and implemented stakeholder comments and considered industry input obtained during the proceedings of the 813 Panel.³⁹

DOD's IP Instruction and Department-wide Guidance Do Not Directly Address DOD's Ability to Acquire Detailed Manufacturing or Process Data

While the IP instruction emphasizes the importance of acquiring and licensing IP early in the acquisition process, officials from the IP Cadre and military departments stated that the instruction and department-wide guidance do not address DOD's ability to acquire DMPD. According to these officials, some DOD personnel believe that the current regulations prevent them from requesting DMPD the department often needs for sustainment activities. However, IP Cadre officials told us that DOD personnel are, in fact, allowed to request these data. IP Cadre officials

³⁹The working group consisted of a cross-functional team with experts on requirements, acquisition, sustainment, research and development, engineering, and training from OSD, the military departments, and other DOD components.

told us that the misunderstanding hinders cost-effective re-procurement and sustainment of DOD systems.

The 813 Panel report and IP Cadre officials attributed this misunderstanding, in part, to tensions in the regulatory framework governing IP. In June 1995, DOD issued DFARS sections that implement two parts of the U.S. code related to the acquisition of DMPD.⁴⁰ IP Cadre officials told us that the first DFARS section establishes that DOD **cannot condition a contract award** on a vendor granting rights to DMPD, which they said may discourage DOD personnel from requesting it. According to the same officials, the second section, however, emphasizes what actions DOD may take to acquire DMPD. Members of the IP Cadre told us that DOD **can consider the effects** of acquiring rights to DMPD during source selections, and that these considerations are a more effective negotiation tool in a competitive environment. This position is consistent with findings from the 813 Panel. The panel reported that vendor's data deliverables and associated licenses should be considered during source selection, and that DOD would not be forcing vendors to give up any license rights in violation of statute by asking that IP costs be included in the proposal.⁴¹

The 813 Panel further found that DOD's past source selections often did not include an evaluation factor for IP, particularly technical data and associated license rights. As a result, DOD did not evaluate the value of IP during proposal evaluation. IP Cadre officials told us they want DOD personnel to be equally familiar with both DFARS sections and to use a balanced approach when considering the acquisition of DMPD. IP Cadre officials also want DOD personnel to evaluate the cost of requested IP deliverables and license rights during source selection in the ways that the regulations permit. However, the 2019 IP Instruction does not

⁴⁰See DFARS § 227.7103-1(c) and § 227.7103-10(a)(5) implementing 10 U.S.C. §§2320, 2321. Congress provided limited exceptions for technical data, allowing for unlimited government rights in "form, fit, and function" data and technical data necessary for "installation, operation, maintenance, or training" purposes. See 10 U.S.C. § 2320(a)(2)(A)(i). However, Congress excluded contractors' protected manufacturing data, known as "detailed manufacturing or process data." See 10 U.S.C. § 2320 (a)(2)(C)(ii).

⁴¹2018 Report Government-Industry Advisory Panel on Technical Data Rights (Nov. 13, 2018).

reference either DFARS section or clarify DOD's ability to acquire DMPD.⁴²

IP Cadre officials told us the instruction does not address DMPD because DOD instructions generally do not address specific, individual challenges. They said that other types of guidance often address these types of challenges. However, we found that DOD's current department-wide guidebook for acquiring IP rights from commercial companies also does not address how DOD officials can consider the effects of acquiring rights to DMPD during source selections.⁴³ In an April 2020 report to Congress, DOD identified that it plans to publish a new department-wide IP guidebook intended to explain IP-related regulations and policies. However, the report did not identify whether the guidebook will address how government personnel may pursue DMPD during source selections.⁴⁴ Members of the IP Cadre told us they expect DOD will publish the guidebook in the first quarter of fiscal year 2022, and that they believe it should address common misunderstandings related to DMPD.

Standards for Internal Control in the Federal Government state that management should internally communicate information necessary to achieve objectives. In developing the next iteration of its guidebook, DOD leadership, specifically the Under Secretary of Defense for Acquisition and Sustainment, has an opportunity to clarify how DOD personnel should account for the two DFARS sections addressing DMPD and, ultimately, improve the re-procurement and sustainment of DOD systems.

⁴²We found that a 2015 Army guide cites both DFARS sections and clarifies that, while government personnel cannot require additional data rights from vendors, they can evaluate the effect of offered rights for technical data and computer software. However, this guidance has limited visibility across DOD. See U.S. Army Product Data & Engineering Working Group, *Army Data & Data Rights (D&DR) Guide*, 1st ed., (August 2015).

⁴³Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, *Intellectual Property: Navigating Through Commercial Waters, Issues and Solutions When Negotiating Intellectual Property With Commercial Companies* (Oct. 15, 2001).

⁴⁴Office of the Under Secretary of Defense for Acquisition and Sustainment, *Report to Congress on Intellectual Property Policy and the Cadre of Intellectual Property Experts Section 838 of the National Defense Authorization Act for Fiscal Year 2020* (April 2020).

DOD Is Taking Steps to Implement the IP Instruction, but Has Not Fully Identified How the IP Cadre Will Meet Its Assigned Responsibilities

DOD's IP Instruction assigns specific responsibilities to several organizations within the department, including DOD's Office of General Counsel, DAU, the military departments, and DOD's new IP Cadre. We found that, while these organizations are working to meet their responsibilities, DOD has not yet determined how the IP Cadre will fulfill all of its assigned responsibilities. In particular, DOD has not ascertained whether the IP Cadre, whether by itself or in coordination with other entities within DOD, has the capacity to conduct IP valuation or provide program support. Additionally, DOD has not determined how the IP Cadre will be funded and staffed in the future.

Organizations Identified in DOD's IP Instruction Are Taking Steps to Meet Their Responsibilities

DOD's IP Instruction identifies specific responsibilities for the Assistant Secretary of Defense for Acquisition, DOD's Office of General Counsel, and the President of DAU. Our review of documentation provided by DOD and interviews with cognizant DOD officials found that these organizations are taking various actions to meet their responsibilities (see table 1).

Table 1: Actions Taken to Address Key Responsibilities Established in DOD's Intellectual Property (IP) Instruction

| DOD official/office | Responsibilities | Examples of actions taken |
|---|--|---|
| Assistant Secretary of Defense for Acquisition (ASD(A)) | <ul style="list-style-type: none"> Serve as senior DOD official overseeing development and implementation of DOD IP policy and guidance Manage a cadre of experts (IP Cadre) in IP acquisition and licensing Coordinate the IP Cadre's development and activities | <p>ASD(A) appointed a Director of the IP Cadre, with responsibility for department-wide implementation of DOD IP policy and guidance.</p> <p>ASD(A) also established a support team under the Director of the IP Cadre, consisting of four temporary government positions and eight support contractors.</p> |
| Office of General Counsel | <ul style="list-style-type: none"> Provide legal advice and services in support of DOD's IP Instruction and in support of the IP Cadre | DOD General Counsel assigned a staff member to the team supporting the Director of the IP Cadre, as Associate General Counsel for IP, to advise and support IP acquisition, licensing, and management. |
| President of Defense Acquisition University (DAU) | <ul style="list-style-type: none"> Develop and update curricula and reference materials (in coordination with the IP Cadre) Provide IP training Continuously improve and tailor IP training | <p>DAU collaborated with the IP Cadre to develop new IP training and update existing IP training.</p> <p>In addition, DAU:</p> <ul style="list-style-type: none"> finalized a 5-year strategic plan for IP training; established an IP Community of Practice web portal; and established a foundational IP credential using DAU's online IP courses. |

Source: GAO analysis of Department of Defense (DOD) Instruction 5010.44, DOD responses to a structured checklist, and related documentation. | GAO-22-104752

Additionally, DOD's IP Instruction identifies several specific responsibilities for the military departments, such as incorporating IP planning into acquisition strategies and source selections. DOD officials

told us that the military departments are leveraging DOD and component-specific guidance to consider IP factors during source selections and to incorporate IP planning into their acquisition strategies, among other things. Table 2 provides examples of actions the military departments have taken to meet requirements from the IP Instruction, according to DOD officials and our review of documentation provided by DOD and the military departments.

Table 2: Examples of How Military Departments Are Addressing Responsibilities Established in DOD’s Intellectual Property (IP) Instruction

| Responsibilities from IP Instruction | Air Force approach | Army approach | Navy approach |
|---|--|---|---|
| Ensure program personnel engaged in all stages of the acquisition life cycle have relevant knowledge of IP matters, as appropriate | Air Force established component-specific IP guidance that sets an expectation for personnel at all stages of the acquisition life cycle to be familiar with relevant IP policy and guidance. | Army established component-specific IP guidance that directs staff at all stages of the acquisition life cycle to follow best practices for negotiating customized IP agreements with industry. | The Navy follows DOD guidance and component-specific acquisition guidance for program reviews and acquisition strategy approval processes to ensure that relevant personnel consider and use appropriate IP techniques and practices. |
| Incorporate consideration of types of IP deliverables and associated license rights into source selection evaluation factors and as negotiation objectives in sole-source awards, as appropriate | Air Force IP guidance identifies IP as a source selection evaluation factor, and directs contracting personnel and program officials to review and validate contractors’ restrictive assertions, when appropriate. | Army IP guidance directs staff to identify the types of IP and license rights needed and to consider including availability and delivery of identified data and rights as a source selection evaluation factor. | Navy open architecture guidance directs personnel to consider IP deliverables as part of proposal evaluation and for source selection. |
| Incorporate IP planning elements into acquisition strategies, emphasizing long-term analysis and planning during the earliest phases of the program, and preserving flexibility in the program sustainment strategy | Air Force IP guidance addresses early IP planning, involving cost and benefits analysis, and the Air Force uses tools such as checklists and approval processes to ensure that proper IP planning has occurred. | Army guidance establishes that acquisition strategies should include IP strategies and notes that they should be developed as early as possible and continuously updated to reflect evolving conditions and needs over a system’s life cycle. | Navy uses DOD’s Adaptive Acquisition Framework policy—and is in the process of updating its own acquisition guidance—to direct acquisition personnel to include a technical data plan in a program’s IP strategy. |
| Communicate clearly and effectively with industry on IP matters early in the program life cycle | Air Force IP guidance directs personnel to communicate IP needs and strategies to vendors and to use tools such as checklists to ensure IP matters are considered when communicating with vendors. | Army guidance states that Army personnel should communicate with industry early in the acquisition process and share appropriate information from IP strategies. | Navy follows DOD’s acquisition planning procedures, which require program offices to document their IP goals; Navy commands also have practices for sharing IP goals with vendors via industry days and draft solicitations. |

Source: GAO analysis of Department of Defense (DOD) Instruction 5010.44, DOD responses to a structured checklist, and related documentation including Air Force Data Rights Guidebook and Army Directive 2018-26. | GAO-22-104752

Note: This table is not inclusive of all of the responsibilities DOD Instruction 5010.44.

DOD Has Not Identified Strategies or Resources for the IP Cadre to Fully Meet Its Assigned Responsibilities

DOD's IP Instruction identifies several responsibilities for the IP Cadre that involve strategic activities and providing program support (see table 3).

Table 3: Intellectual Property (IP) Cadre Responsibilities in DOD's IP Instruction

| | |
|----------------------|---|
| Strategic activities | Interpret and provide counsel on laws, regulations, and policies relating to intellectual property (IP) |
| | Coordinate with DAU, academia, and industry to improve IP training |
| | Facilitate coordination and consistency across DOD for determining the IP deliverables and rights necessary for operation, maintenance, modernization and sustainment |
| Program support | Advise and assist acquisition programs with the development of acquisition, product support, and IP strategies |
| | Conduct or assist acquisition programs with financial analysis and valuation of IP |
| | Assist acquisition programs in drafting solicitations, contracts, or other transactions |
| | Address management of IP deliverables and IP rights to create a competitive environment |
| | Assist program interactions with contractors, including negotiations on solicitations and awards |
| | Conduct or assist acquisition programs with mediation if technical data is not delivered or does not meet contract terms |

Source: GAO analysis of Department of Defense (DOD) Instruction 5010.44. | GAO-22-104752

In addition to the responsibilities identified in Table 3, DOD's IP Instruction directs the ASD(A) to ensure that the IP Cadre is adequately staffed to provide seven areas of expertise:

1. Acquisition
2. Contracting
3. Engineering
4. Law
5. Logistics
6. Financial analysis
7. Valuation

DOD has provided some information on its strategy for the IP Cadre to meet its responsibilities in two reports to Congress.⁴⁵ For example, these reports identify certain planned activities and provide information about the IP Cadre's existing areas of expertise. However, DOD has not yet detailed

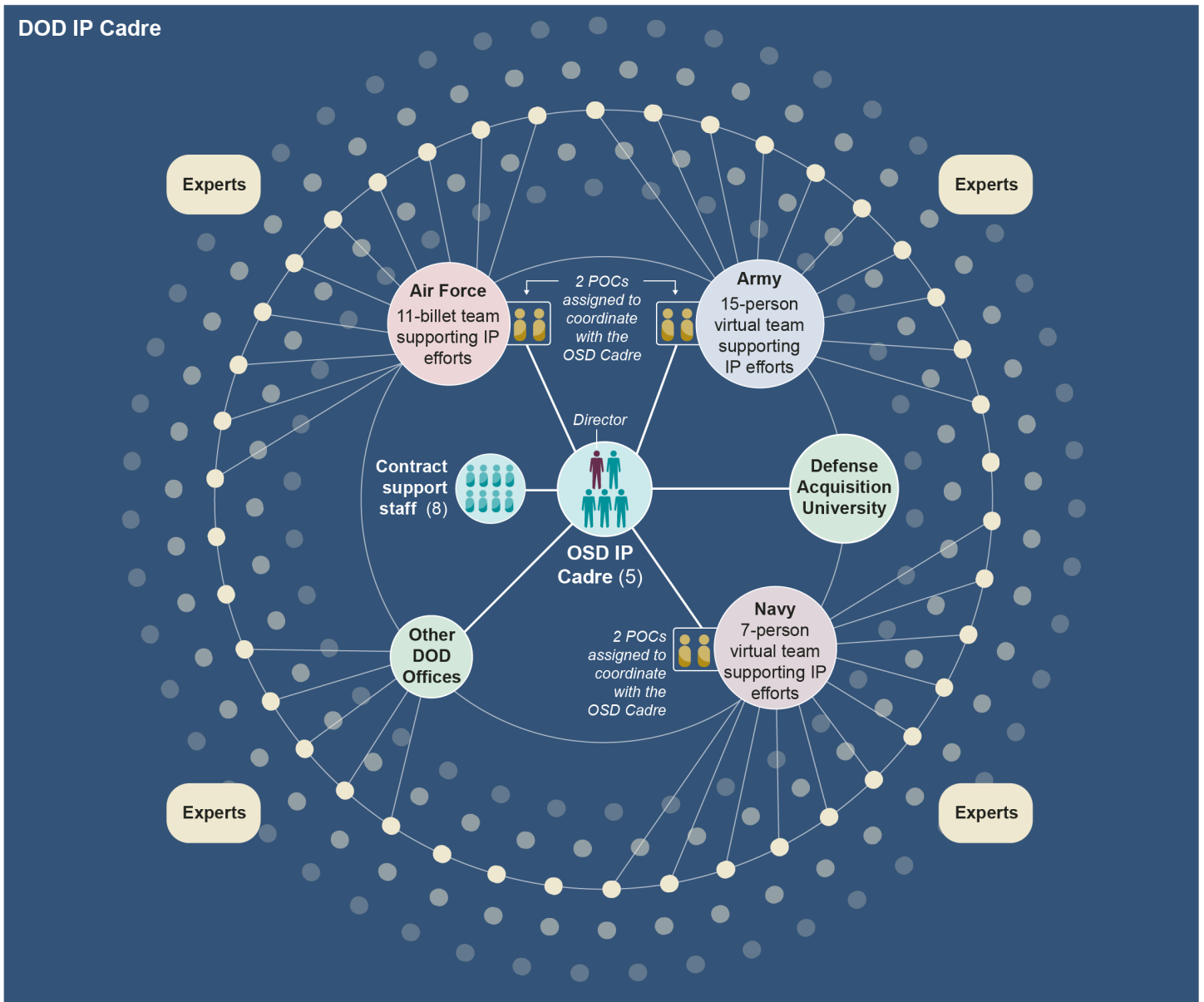
- how the IP Cadre will provide program support,
- how the IP Cadre will provide two key areas of expertise, and
- future funding and staffing needs for the IP Cadre.

Program support. The IP Instruction assigns the IP Cadre responsibility for providing support to programs, such as assisting with the development of acquisition planning and product support planning. The IP Cadre director told us that the IP Cadre will work to meet this responsibility through the federated structure described in the two reports to Congress. Specifically, in April 2020 and March 2021, DOD described the IP Cadre's organizational structure as a federated model that involves two cadres: the five-billet Office of the Secretary of Defense (OSD) IP Cadre situated in OUSD (A&S), which is part of a larger, less clearly defined network of DOD IP experts that span the entire department.⁴⁶ According to DOD officials, from October 2019 to September 2021, DOD primarily focused on establishing the OSD IP Cadre. Figure 5 presents the IP Cadre's proposed federated structure, including the OSD IP Cadre's central role, contracted support staff, DAU, and dedicated points of contact at the military departments.

⁴⁵Office of the Under Secretary of Defense for Acquisition and Sustainment, *Report to Congress on Intellectual Property Policy and the Cadre of Intellectual Property Experts Section 838 of the National Defense Authorization Act for Fiscal Year 2020* (April 2020); and *Report to Congress On Pilot Program on Intellectual Property Evaluation for Acquisition Programs Section 801 of the National Defense Authorization Act for Fiscal Year 2020* (March 2021).

⁴⁶OUSD (A&S), *Report to Congress on Intellectual Property Policy and the Cadre of Intellectual Property Experts* (April 2020); and *Report to Congress on Pilot Program on Intellectual Property Evaluation for Acquisition Programs* (March 2021).

Figure 5: Proposed Federated Structure for DOD’s Intellectual Property (IP) Cadre



DOD = Department of Defense
 IP = Intellectual property
 OSD = Office of the Secretary of Defense
 POC = Point of contact

Source: GAO analysis of DOD documentation. | GAO-22-104752

Note: In addition to the IP Cadre, the Defense Acquisition University coordinates with military departments, industry, academia, and the public on its intellectual property training and learning materials.

Under this approach, the five OSD IP Cadre members expect to tap into a much larger pool of IP experts from among the thousands of personnel that make up DOD's acquisition workforce. Members of the OSD IP Cadre expect that the members of the larger DOD IP Cadre will provide many of the program-support functions identified in the IP Instruction, and that these personnel will contribute in that capacity in addition to their current responsibilities. The IP Cadre director said that this approach maximizes DOD resources, allowing the five-person team to leverage its expertise across the department—primarily by conducting strategic activities such as interpreting laws, developing DOD-wide guidance and tools, and coordinating with DAU—while relying on military department staffs to support their own acquisition programs, as they have in the past. The members of the OSD IP Cadre plan to support programs when requested to do so. As of July 2021, the Director of the IP Cadre told us the OSD IP Cadre had provided support to four acquisition programs and eight other DOD offices, but indicated that members of the larger DOD IP Cadre will be principally responsible for supporting programs.

OSD IP Cadre officials told us more work is needed to refine how members of the OSD IP Cadre and the larger DOD IP Cadre will work together. For example, these officials told us that detailed staffing and resourcing requirements for the OSD IP Cadre and the military departments have not yet been identified.

Areas of expertise. DOD officials have efforts underway to increase expertise in two of the seven areas required by the IP Instruction: IP valuation and financial analysis. Members of the OSD IP Cadre told us the military departments, including the offices proposed to be part of the larger DOD IP Cadre, currently lack sufficient expertise in those areas. In its April 2020 report to Congress, DOD described its plan to leverage an ongoing 3-year pilot program that is assessing, in part, mechanisms for determining the value of IP.⁴⁷ The pilot program will study valuation strategies used by one major Army weapon system and three smaller Navy programs to identify practices that can be shared across DOD and incorporated into department-wide guidance. The pilot program will also involve the collection and analysis of data across DOD, and outreach to industry, academia, and other non-governmental entities. Further, OSD IP Cadre officials told us that they plan to work with the Defense Pricing and Contracting directorate on financial analysis matters, although they

⁴⁷The National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92, § 801, authorized DOD to conduct a 3-year pilot program assessing mechanisms for evaluating IP, including its monetary value.

recognize that those experts generally do not provide the program-specific financial analysis or IP support assigned to the IP Cadre in the DOD Instruction. OSD IP Cadre officials told us more work is needed to determine the level of workforce resources needed to meet those responsibilities.

Future funding and staffing for the IP Cadre. In the Fiscal Year 2018 NDAA, Congress authorized DOD to use the Defense Acquisition Workforce Development Account (DAWDA) to staff the IP Cadre for up to 3 years. In fiscal years 2020 and 2021, DOD officials told us that the department used \$4.7 million in DAWDA funding on IP Cadre staffing and activities. According to IP Cadre officials, DOD planned to use available DAWDA funding to pay the salaries for four of the five OSD IP Cadre billets through July 2023. However, OSD IP Cadre officials told us these four billets were created as temporary billets, and that DOD leadership has not yet converted them to permanent billets. The Director of the IP Cadre told us that securing permanent billets beyond July 2023 is the top risk to the IP Cadre's current framework. OSD IP Cadre members told us the temporary nature of their positions was a disincentive when they were assessing the employment opportunity, and they suggested that it could present an obstacle in future attempts to staff the OSD IP Cadre.

While DOD has developed a conceptual framework intended to guide its operations, we found that the department has not yet detailed how the IP Cadre will meet its broad responsibilities or determined whether it has the capacity to do so. IP Cadre officials told us they plan to assess further the framework and the associated implementation plans and resource requirements. Office of Management and Budget (OMB) Circular A-11 states that performance planning, human capital planning, and budget processes should jointly support an agency's implementation of goals and objectives by establishing refined strategies and resource allocations, among other things.⁴⁸ Until DOD determines how the IP Cadre will meet its responsibilities and the resources needed to do so, DOD will be at increased risk of not implementing a key element of its IP strategy.

⁴⁸Office of Management and Budget, *Preparation, Submission, and Execution of the Budget*, Circular No. A-11, § 230.2 (August 2021).

DAU Is Working to Improve IP Training, but Its Strategic Plan Lacks Priorities, and the IP Cadre Has Not Specifically Identified Which DOD Personnel Should Take the Training

To guide its efforts to improve its IP training, DAU developed a 5-year strategic plan that identified more than 60 activities that DAU could pursue. However, resource constraints limit DAU's ability to pursue all of them and the plan does not prioritize these activities past 2023. Additionally, DOD's IP Instruction states that DOD personnel with a role in supporting IP acquisitions should receive IP training, but officials from the military departments told us additional clarification from the IP Cadre on which personnel specifically should receive IP training would be beneficial.

DAU Is Updating and Expanding IP Training, but Its Strategic Plan Does Not Prioritize Activities

DAU developed a 5-year strategic plan for improving IP training after a comprehensive review of its IP and Data Rights courses and training materials, and based upon recommendations from IP Cadre staff and other DOD stakeholders. To implement parts of that plan, DAU has undertaken several efforts. For example, DAU introduced a foundational IP credential in September 2020, based on seven existing IP training courses. The credential is intended to provide learners with a general understanding of a range of IP topics. DAU is currently in the process of updating those IP courses to reflect legislative and policy changes from the past 5 years. The DAU IP Learning Director told us DAU tentatively plans to complete those updates by June 2022. DAU also plans to develop topical IP credentials and other IP training materials. Additionally, DAU created an IP community of practice web portal that visitors can use to identify DAU's IP-related training courses. This web portal serves as one of the OSD IP Cadre's primary conduits for disseminating IP resources.⁴⁹ For example, we found that as of August 2021, the portal contained over 40 documents, including recent IP-related policies, a collection of IP and data rights best practices, templates, and videos.

The strategic plan also includes more than 60 other activities related to IP training. Proposed activities include creating or updating specific IP training courses and collaborating with industry groups to develop IP-related learning resources. This aligns with our discussions with the IP

⁴⁹To access DAU's community of practice portal, see <https://www.dau.edu/cop/IPDR/Pages/Default.aspx>. Defense Acquisition University, *Acquisition Community Connection: Intellectual Property (IP) & Data Rights*, accessed October 25, 2021.

Cadre, officials within the military departments, and representatives from industry groups, who identified a number of areas where additional training could be helpful. For example, officials from the OSD IP Cadre and military departments told us that DOD personnel responsible for activities across the acquisition life cycle would benefit from training tailored to their roles. In practice, for example, this training could enable engineers who develop technical requirements to work with logisticians who plan sustainment activities to determine what IP deliverables are necessary to maintain a system. In turn, program managers and contracting staff could use that information to assess risks and costs related to IP before awarding a contract. Industry groups also told us that DOD personnel often do not understand their roles in acquiring IP, and that more tailored training could help them better engage with industry to identify appropriate IP and strategies for obtaining it. Additionally, industry groups told us that DOD personnel could benefit from training to help them negotiate IP transactions with smaller and less experienced firms, particularly when using Other Transaction Authorities (OTAs) to enter into agreements with specially negotiated licenses for IP.⁵⁰ OSD IP Cadre and DAU officials told us that this additional training content could be delivered through courses on OTAs, specially negotiated licenses, Small Business Innovation Research and Small Business Technology Transfer programs,⁵¹ and Modular Open Systems Approaches.⁵²

However, DAU officials told us that DAU's ability to execute all the potential activities, including creating or updating courses that it identified in its strategic plan, is limited by resource constraints. DAU's strategic plan identifies seven priority issue areas, which DAU plans to address through December 2022. However, DAU has not identified which

⁵⁰Other transaction authorities allow DOD to enter into agreements "other than" standard government contracts or other traditional mechanisms. Agreements under these authorities are generally not subject to federal laws and regulations applicable to federal contracts or financial assistance, allowing agencies to customize their other transaction agreements to help meet project requirements and mission needs. 10 U.S.C. § 2371b.

⁵¹The Small Business Innovation Research and Small Business Technology Transfer programs encourage domestic small businesses to engage in federally sponsored research efforts with the potential for commercialization.

⁵²DOD's modular open systems approach (MOSA) is to design systems with highly cohesive, loosely coupled, and severable modules that can be competed separately and acquired from independent vendors. This approach allows the department to acquire warfighting capabilities, including systems, subsystems, software components, and services, with more flexibility and competition. MOSA implies the use of modular open systems architecture, a structure in which system interfaces share common, widely accepted standards, with which conformance can be verified.

activities it will fund after that time frame—i.e., from January 2023 through December 2025, (the end date for the strategic plan). The DAU Learning Director for Intellectual Property told us DAU has not prioritized activities for fiscal year 2023 and beyond because the OSD IP Cadre has not yet identified which activities DAU should prioritize during that period.

DOD's IP Instruction directs DAU and the IP Cadre to collaborate on developing and improving IP training. Further, OMB Circular A-11 states that agencies should identify priorities supporting strategic objectives and that strategic plans should provide the context for budget planning. Until the OSD IP Cadre provides DAU with updated priorities, there is increased risk that DAU will not use its limited resources to develop and deliver the highest priority IP training.

OSD IP Cadre Has Not Yet Identified Who Specifically Should Receive IP Training within the Military Departments

DOD's IP Instruction states that the heads of components with acquisition authority—such as the military departments—shall ensure that personnel engaged in all stages of the acquisition life cycle have relevant knowledge of IP matters, laws, and regulations. The IP Instruction also tasks the Director of the IP Cadre with supporting the development of training requirements for the acquisition workforce. Officials representing the Directors of Acquisition Career Management (DACM) at the Army and Air Force told us that they need additional guidance from the IP Cadre to identify the specific individuals within key career fields who should receive IP training or pursue the IP credential. They also noted that training that targets its audience is more meaningful for the workforce. For example, according to Army and Air Force DACM officials, it would be more useful to have logisticians who contribute to life-cycle sustainment plans take the IP training, rather than requiring that all logisticians do so.

This position on targeted training is consistent with November 2020 guidance from the OUSD (A&S) and the president of DAU. That guidance sets an expectation that DAU should design training and credentials for people who need specific knowledge and skills at the time they need them.⁵³ The DACM officials told us that they would be positioned to track whether the targeted personnel completed the courses, using the personnel's individualized training plans, if the OSD IP Cadre more specifically identified which DOD personnel should receive IP training or credentials. Until the Director of the IP Cadre provides this guidance,

⁵³Deputy Under Secretary of Defense for Acquisition & Sustainment and Defense Acquisition University, *Defense Acquisition University Reform - The Intersection with Back-to-Basics* (November 2020).

however, DOD is at increased risk that personnel that should be receiving IP training will not receive it when they would benefit from it most.

DOD Has Taken Initial Steps to Develop a Capability to Track IP It Has Licensed or Acquired

DOD does not currently have a capability to track IP or data rights it previously acquired, but the department is piloting an effort to develop this capability.⁵⁴ The Section 813 Panel concluded that federal agencies need to maintain relevant contract documents and IP documentation to avoid purchasing IP and corresponding IP rights more than once, and to avoid losing IP rights over time.⁵⁵

Officials from the OSD IP Cadre, Army, Air Force, and Defense Advanced Research Projects Agency told us that DOD has purchased voluminous amounts of IP deliverables and licenses, but has no means of tracking them across the department or within components. The OSD IP Cadre is working with the Joint Artificial Intelligence (AI) Center to pilot an artificial intelligence knowledge-sharing model through February 2022. This model is intended to mine existing DOD databases to locate IP that DOD owns or has licensed. The Joint AI Center, the OSD IP Cadre, and a team of cross-functional subject matter experts are currently working to develop common terms and definitions that will facilitate DOD-wide searches. Members of the OSD IP Cadre told us this capability would enable users to identify IP already acquired by DOD personnel and work with the current owner to leverage that IP to meet additional needs.

OSD IP Cadre officials told us the knowledge model is also intended to help address data gaps that hinder DOD from demonstrating the benefits of adhering to the key principles in the 2019 IP Instruction. OSD IP Cadre officials told us that having that information is critical for convincing DOD officials to prioritize IP earlier in the acquisition process. We will continue to monitor DOD's progress in developing this capability.

Conclusions

DOD's IP Instruction highlights core principles and integrates guidance and requirements for acquiring and licensing IP. However, the instruction and other DOD-wide guidance do not address misconceptions about DOD's ability to pursue detailed manufacturing or process data. This affects the department's ability to manage costs by competing requirements for weapons systems over time, including operation and maintenance requirements. DOD also has not yet established the refined

⁵⁴National Defense Authorization Act for Fiscal Year 2016, Pub. L. No. 114-92, § 813.

⁵⁵2018 Report Government-Industry Advisory Panel on Technical Data Rights (Nov. 13, 2018).

strategies, staffing plans, and resource requirements needed for the IP Cadre to fully meet its broad responsibilities set forth in the department's IP Instruction. DOD also has opportunities to further improve IP training by ensuring that DAU prioritizes the development and delivery of high-priority IP training, and by identifying personnel that would benefit most from receiving IP training and credentials for their roles.

Recommendations for Executive Action

We are making four recommendations to DOD:

The Under Secretary of Defense for Acquisition and Sustainment should ensure that DOD's planned guidebook on IP clarifies how DOD personnel can pursue detailed manufacturing or process data. (Recommendation 1)

The Secretary of Defense should determine the collaboration, staffing, and resources needed, both within the Office of the Secretary of Defense and across the components, to execute DOD's proposed federated approach for the IP Cadre. (Recommendation 2)

The Assistant Secretary of Defense for Acquisition should ensure that the Director of the IP Cadre collaborates with the President of DAU to prioritize IP-related tasks that DAU should undertake between 2023 through 2025. (Recommendation 3)

The Assistant Secretary of Defense for Acquisition should ensure that the Director of the IP Cadre develops additional guidance to help component heads and DACMs identify the DOD personnel in key career fields that would benefit most from receiving IP training and credentials. (Recommendation 4)

Agency Comments and GAO Response

We provided a draft of this report to DOD for the department's review and comment. In response, DOD provided the comment letter reproduced in appendix II. In its comment letter, DOD concurred with all four recommendations made in this report and identified planned actions to address them. We believe those actions, if implemented, have the potential to meet the intent of our recommendations. For example, we recommended that the Secretary of Defense should determine the collaboration, staffing, and resources needed to execute DOD's federated approach for the IP Cadre. In response, DOD told us that by July 2023, the Office of the Secretary of Defense (OSD) and component heads will determine appropriate staffing and resourcing levels at OSD and DOD components to implement the department's federated approach. DOD also provided separate technical comments, which we addressed in the report as appropriate.

We are sending copies of this report to the appropriate congressional committees; the Secretary of Defense; the Under Secretary of Defense for Acquisition and Sustainment; the Assistant Secretary of Defense for Acquisition; the Director, IP Cadre; the President, Defense Acquisition University; and the Secretaries of the Air Force, Army, and Navy. In addition, the report is available at no charge on the GAO website at <https://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-4841 or DiNapoliT@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix III.

A handwritten signature in black ink, reading "Timothy J. DiNapoli". The signature is written in a cursive style with a large initial 'T' and 'D'.

Timothy J. DiNapoli
Director, Contracting and National Security Acquisitions

List of Committees

The Honorable Jack Reed
Chairman
The Honorable James M. Inhofe
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Jon Tester
Chairman
The Honorable Richard Shelby
Ranking Member
Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable Adam Smith
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The Honorable Mike Rogers
Ranking Member
Committee on Armed Services
House of Representatives

The Honorable Betty McCollum
Chair
The Honorable Ken Calvert
Ranking Member
Subcommittee on Defense
Committee on Appropriations
House of Representatives

Appendix I: Proposed Changes to the Defense Federal Acquisition Regulation Supplement Related to Intellectual Property

The Defense Acquisition Regulations System follows the federal rulemaking process when updating the Defense Federal Acquisition Regulation Supplement (DFARS). The steps taken during that process are tracked under specific case numbers. DOD updates the status of these cases on a regular basis on a publicly available website.¹ Table 4 lists the cases related to intellectual property that remain open as of September 2021.

Table 4: Open Defense Federal Acquisition Regulation Supplement (DFARS) Cases Related to Intellectual Property, as of September 2021

| DFARS case number | Title | Synopsis |
|-------------------|--|---|
| 2018-D069 | Validation of Proprietary and Technical Data | Implements fiscal year (FY) 2019 National Defense Authorization Act (NDAA) section 865, which clarifies the definition for commercial items developed at private expense. |
| 2018-D071 | Negotiation of Price for Technical Data and Preference for Specially Negotiated Licenses | Implements FY 2018 NDAA § 835 and FY 2019 NDAA § 867. Section 835 adds 10 U.S. Code (U.S.C.) 2439 to require negotiation of a price for technical data before development or production of major weapon systems, and amends 10 U.S.C. § 2320 to establish a preference for specially negotiated licenses. Section 867 requires DOD, before selecting a contractor for production or sustainment of a major weapon system, to negotiate a price for technical data to be delivered under the contract. |
| 2018-D018 | Noncommercial Computer Software | Implements FY 2018 NDAA section 871, which adds new section 10 U.S.C. § 2322a, requirement for consideration of certain matters during acquisition of noncommercial computer software. |
| 2021-D005 | Modular Open Systems Approaches | Implements FY2021 NDAA section 804, FY2017 NDAA section 809, and FY 2012 NDAA section 815. Section 804 addresses rights in technical data for modular system interfaces developed at private expense or with mixed funding. Section 809 subsections (a), (b), and (d) address rights relating to items or processes developed exclusively at private expense. Section 815 subsection (b) addresses validation of proprietary data restrictions. |
| 2019-D043 | Small Business Innovation Research Program Data Rights | Implements changes to data rights in the Small Business Administration's Policy Directive for the Small Business Innovation Research Program, published in the Federal Register on April 2, 2019. |
| 2019-D044 | Rights in Technical Data | Implements FY 2017 NDAA section 809(c) and FY 2012 NDAA section 815(a), which address deferred ordering of technical data. |
| 2021-D002 | Use of DOD Program Nomenclature | Implements policy to ensure DOD and its authorized suppliers are not restricted in the use of certain program nomenclature, such as program names and systems' designations that are assigned and approved by the Government pursuant to established departmental procedures. |

¹Reporting on DFARS cases can be found at https://www.acq.osd.mil/dpap/dars/case_status.html. Defense Pricing and Contracting, *Defense Acquisition Regulations System: Defense Federal Acquisition Regulation Supplement (DFARS) Case Status*, accessed October 25, 2021.

**Appendix I: Proposed Changes to the Defense
Federal Acquisition Regulation Supplement
Related to Intellectual Property**

| DFARS case number | Title | Synopsis |
|--|---|---|
| 2001-D005, formerly 2019-D042 ^a | Rights Relating to Modular Open System Approaches and Validation of Proprietary Data Restrictions | Implements FY 2017 NDAA section 809(a), (b), and (d), and FY 2012 NDAA section 815[(a)(1)(A) and (1) (b), which address rights related to modular open system approaches. |

Source: GAO analysis of Defense Acquisition Regulations Systems documentation. | GAO-22-104752

Note: The information in this table summarizes relevant aspects of the NDAA sections listed. National Defense Authorization Act for Fiscal Year 2012, Publ. L. No. 112-81, § 815. National Defense Authorization Act for Fiscal Year 2017, Pub. L. No. 114-328, § 809. National Defense Authorization Act for Fiscal Year 2018, Publ. L. No. 115-91, § 871. John S. McCain National Defense Authorization Act for Fiscal Year 2019, Publ. L. No. 115-232, §§ 865, 867. William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, Publ. L. No. 116-283, §§ 871, 804.

^aDFARS case 2019-D042 was subsumed into DFARS case 2021-D005 in March 2021.

Appendix II: Comments from the Department of Defense



ACQUISITION
AND SUSTAINMENT

OFFICE OF THE UNDER SECRETARY OF DEFENSE
3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

Mr. Timothy J. DiNapoli
Director, Contracting and National Security Acquisitions
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. DiNapoli:

This is the Department of Defense (DoD) response to the GAO Draft Report GAO-22-104752, "DEFENSE ACQUISITIONS: DOD Should Take Additional Actions to Improve How It Approaches Intellectual Property," dated September 30, 2021 (GAO Code 22-104752).

Attached is the DoD's response to the subject report. My point of contact is Mr. Richard Gray, Director, Intellectual Property Cadre, Office of the Under Secretary of Defense (Acquisition and Sustainment), email: richard.m.gray.civ@mail.mil or phone: 703-965-8812.

Sincerely,

RODGERS.PHILIP
DEAN.1080683002

Digitally signed by
RODGERS.PHILIP.DEAN.10806
83002
Date: 2021.11.08 13:38:08 -0500

Philip D. Rodgers
Director, Acquisition Approaches and
Management

Attachment:
As stated

**GAO DRAFT REPORT DATED SEPTEMBER 30, 2021
GAO-22-104752 (GAO CODE 104752)**

**“DEFENSE ACQUISITIONS: DOD SHOULD TAKE ADDITIONAL ACTIONS TO
IMPROVE HOW IT APPROACHES INTELLECTUAL PROPERTY”**

**DEPARTMENT OF DEFENSE COMMENTS
TO THE GAO RECOMMENDATION**

RECOMMENDATION 1: The GAO recommends that the Under Secretary of Defense for Acquisition and Sustainment should ensure that DOD’s planned guidebook on IP clarifies how DOD personnel can pursue detailed manufacturing and processing data.

DoD RESPONSE: The Department concurs with Recommendation 1. The Department will ensure that the planned guidebook on intellectual property (IP) provides clarifying guidance regarding the acquisition and licensing of detailed manufacturing and process data, in support of the Department’s Adaptive Acquisition Framework. The Department plans to complete the drafting of the IP guidebook content by the end of December 2021, for publication in the first quarter of calendar year 2022.

RECOMMENDATION 2: The GAO recommends that the Secretary of Defense should determine the collaboration, staffing, and resources needed, both within the Office of the Secretary of Defense and across the components, to execute DOD’s proposed federated approach for the IP Cadre.

DoD RESPONSE: The Department concurs with Recommendation 2. The Department’s initial staffing for the cadre of IP experts within the Office of the Secretary of Defense (OSD) is comprised of five civilian positions, including one permanent senior level position to serve as the director of that office, and four temporary positions authorized through July 1, 2023. The use of temporary positions reflects this staffing level being a preliminary assessment, and allows for reassessment of the appropriate staffing and resourcing requirements during the initial operating period of the OSD IP Cadre as an element of the DoD federated approach. Prior to the expiration of the OSD IP Cadre temporary positions in July 2023, the OSD and DoD component heads will determine the appropriate staffing and resourcing levels in the OSD IP Cadre and the other OSD and DoD components, to implement the DoD’s federated approach beyond July 2023. The Department anticipates that reassessment of the appropriate staffing and resourcing levels for the IP Cadre federated model will be an ongoing and iterative activity. As an example, as GAO was finalizing the drafting of its report and recommendations, the Navy designated additional personnel to establish a seven-person virtual team to support its IP activities as part of the DoD federated approach.

RECOMMENDATION 3: The GAO recommends that the Assistant Secretary of Defense for Acquisition should ensure that the Director of the IP Cadre collaborates with the President of DAU to prioritize IP-related tasks that DAU should undertake between 2023 through 2025.

Appendix II: Comments from the Department of Defense

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DoD RESPONSE: The Department concurs with Recommendation 3. By the second quarter of fiscal year 2022, the Director of the IP Cadre will collaborate with the President of DAU to prioritize IP related tasks that DAU should undertake between 2023 and 2025. As part of routine collaboration during implementation of these planned activities, the IP Cadre and DAU team will regularly reassess the prioritization to ensure the strategic plan remains agile and responsive to Departmental constraints and priorities.

RECOMMENDATION 4: The GAO recommends that the Assistant Secretary of Defense for Acquisition should ensure that the Director of the IP Cadre develops additional guidance to help component heads and DACMs identify the DOD personnel in key career fields that would benefit most from receiving IP training and credentials.

DoD RESPONSE: The Department concurs with Recommendation 4. The Director of the IP Cadre will leverage the DoD's federated model to consult and coordinate with designated points of contact and relevant subject matter experts in the DoD components in the development of guidance to help DoD components identify and prioritize functional roles for personnel in key career fields that would benefit from receiving IP training and credentials. This guidance will be developed in conjunction with the activities supporting the implementation of Recommendation 3 and is anticipated to be complete before the end of fiscal year 2022.

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Timothy J. DiNapoli, (202) 512-4841 or DiNapoliT@gao.gov

Staff Acknowledgments

In addition to the contact name above, Nathan Tranquilli (Assistant Director), Holly Williams (Analyst-in-Charge), Adriana Aldgate, and Bonita Oden made significant contributions to this report. John Bumgarner, Susan Ditto, Lorraine Ettaro, Robert Marek, Diana Maurer, Christine Pecora, Edward J. SanFilippo, Roxanna Sun, Alyssa Weir, and Candice Wright also contributed to this report.

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