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Report to Congressional Committees

September 2025

WEAPON SYSTEM SUSTAINMENT

DOD Can Improve Planning and Management of Data Rights

On September 29, 2025, GAO reissued this report to revise a paragraph on page 15 to correct an error that replaced the word "DOD" with a number.

GAO-25-107468

GAO Highlights

WEAPON SYSTEM SUSTAINMENT

DOD Can Improve Planning and Management of Data Rights

GAO-25-107468 September 2025

A report to congressional committees.

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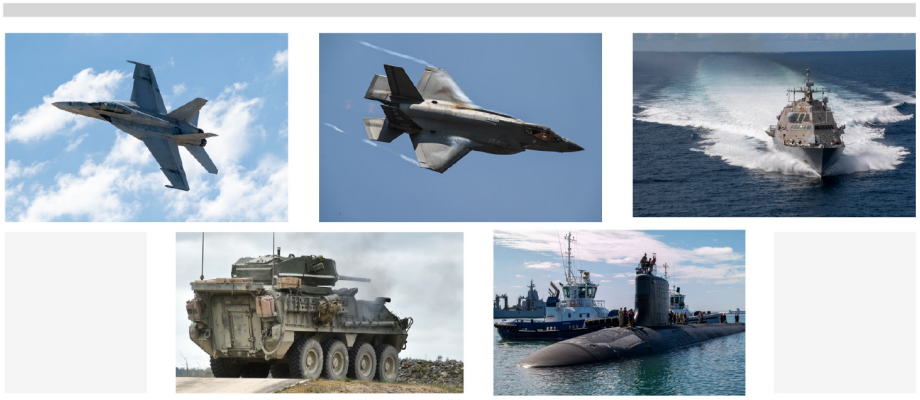
What GAO Found

When the Department of Defense (DOD) contracts for weapon systems, it generally procures some data rights to intellectual property (IP) created by contractors. These data rights determine how DOD can use and distribute contractors' IP and are necessary for DOD to conduct system maintenance.

Selected Weapon Systems GAO Reviewed



Source: (Clockwise from top left): F-18: U.S. Air Force/Senior Airman Jack Rodgers, F-35: U.S. Air Force/Capt. Nathan Poblete, LCS: U.S. Navy/Mass Communication Specialist 2nd Class Devin Bowser, Stryker: U.S. Army/Gertrud Zach, Virginia-class: U.S. Navy/Lt. Corey Todd Jones. | GAO-25-107468

GAO found that DOD's guidance requires programs to plan for IP and data rights necessary for sustainment by preparing IP stratgies. However, DOD guidance focuses largely on programs early in the acquisition cycle and does not fully address the needs of programs in sustainment when it comes to IP and data rights planning. None of the selected programs that completed IP strategies included all of the required elements outlined in DOD policy. Additional information could help better inform programs in sustaiment about the options available to them to address data rights shortfalls.

Selected programs received thousands of individual data products, or data deliverables, which program personnel struggled to review for completeness and accuracy. DOD components have developed tools to assist their review processes, but these efforts are not coordinated across the department. Funding the tools has also been a challenge. Until DOD assesses the tools available, programs may continue to struggle to review the data deliverables they receive.

Selected programs experienced vendor lock—or reliance on a single supplier—due to data rights shortfalls. According to officials, this approach can drive up costs and lengthen repair timeframes. Options to address these effects are limited once programs enter sustainment. Statute affords DOD unlimited rights in operation, maintenance, installation, and training (OMIT) data. However, the statute excludes detailed manufacturing or process data from this allowance. By clarifying how DOD and contractors treat detailed manufacturing or process data needed for OMIT, Congress could broaden the abililty of government personnel to make repairs themselves or compete maintenance work to different vendors while balancing the considerations of the industrial base.

Why GAO Did This Study

DOD spends billions to acquire and sustain weapon systems. To sustain these systems, DOD programs must have the necessary data rights that allow DOD or contractors to conduct maintenance activities. DOD and contractor personnel may have different interpretations of statutes, regulations and contract terms, resulting in disputes regarding what data is delivered under the contracts and affecting DOD's ability to sustain the systems.

A Senate committee report includes a provision for GAO to study data rights. This report examines (1) how selected DOD weapon systems in sustainment planned for IP acquisition, (2) what data deliverables those programs received, and (3) what challenges, if any, selected programs faced in sustainment due to data rights shortfalls.

GAO reviewed planning and contract documents from five selected programs in sustainment: F/A-18, F-35, Littoral Combat Ship, Stryker Combat Vehicle, and *Virginia*-class Submarine. GAO selected programs using criteria such as military service and type of weapon system. GAO reviewed policies, and guidance on IP and data rights for DOD, and interviewed DOD IP experts, program and maintenance personnel for each selected program.

What GAO Recommends

GAO recommends that Congress consider clarifying the treatment of detailed manufacturing or process data needed for OMIT. In addition, GAO is making three recommendations to DOD, including to provide additional IP planning information for programs in sustainment and assess tools for reviewing data deliverables. DOD agreed with GAO's recommendations.

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Abbreviations

CDRL	contract data requirement list
DART	Data Analytics Resource Team
DAU	Defense Acquisition University
DFARS	Defense Federal Acquisition Regulation Supplement
DID	data item description
DOD	Department of Defense
DODI	Department of Defense Instruction
DRSAVE	Data Rights Sustainment and Acquisition Validation Engine
IP	intellectual property
IP Cadre	Office of the Secretary of Defense Intellectual Property Cadre
IPR Module	Intellectual Property Rights Module
LCS	Littoral Combat Ship
LCSP	life cycle sustainment plan
MCWS	Medium Caliber Weapon System
NAVAIR	Naval Air Systems Command
Odin-DR	Odin-Data Rights
OEM	original equipment manufacturer
OMIT	operation, maintenance, installation, and training
OSD	Office of the Secretary of Defense
SNLR	specifically negotiated license rights
TDP	technical data package

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Congressional Committees

The Department of Defense (DOD) spends billions of dollars every year to acquire, upgrade, repair, and sustain weapon systems. To sustain these systems, DOD must access or use intellectual property (IP) from contractors, which includes, among other things, engineering drawings and technical manuals.

DOD's license rights to certain types of IP–also known as data rights–are outlined in statute and regulation.[1] These rights determine the extent to which DOD can use and distribute contractors' IP. For example, DOD has unlimited rights in statute to certain data needed for operations, maintenance, installation, and training (OMIT) purposes.[2] DOD obtains these data rights in its weapon system development and production contracts.

However, interpretations may differ on statutes, regulations, and contract terms related to data rights on the parts of government acquisition professionals and industry representatives. These differences may result in disputes regarding what data and material is delivered under government contracts, as well as on the restrictive markings placed by the contractor on the data that is delivered. For example, the government and contractors may differ on what data they consider necessary for system maintenance. Such disputes can lead to data gaps which impede DOD's ability to perform maintenance on weapon systems.

DOD program offices prepare acquisition, IP, and sustainment strategies during early planning phases when long-term data rights and licensing needs can be difficult to predict. Striking the right balance in this process is a challenge. According to officials, uncertainty early in a program's life

[1]See appendix I for detailed history of data rights legislation, as well as current statutory provisions in U.S. code. See DFARS 252.227-7013 for data rights defined in regulation.
[2]DOD is also granted unlimited rights to form, fit, and function data, which refers to the technical data that describe the required overall physical, functional, and performance characteristics (along with the qualification requirements, if applicable) of an item, component, or process to the extent necessary to permit identification of physically and functionally interchangeable items. 10 U.S.C. § 3771(b)(2)(B)-(C), DFARS 252.227-7013(a). DOD does not have unlimited rights to detailed manufacturing or process data which includes the steps, sequences, and assembly used by manufacturers to produce an item.

cycle can result in the program attempting to obtain more data rights than are needed instead of tailoring their requirements to meet the program's life cycle needs. Obtaining more data or data rights than necessary can result in higher program costs or contractors refusing to bid on such contracts due to IP concerns. However, a program failing to obtain the technical data and data rights it needs can result in long-term sustainment challenges.

Senate Report 118-58 accompanying S. 2226 National Defense Authorization Act, 2024 includes a provision for GAO to study the relationship between data rights and military readiness.[3] The report highlighted concerns about DOD's inability to properly conduct acquisition oversight of critical systems and procure the necessary data to maintain DOD systems in a timely manner. Furthermore, Conference Report 118-301 accompanying the National Defense Authorization Act for Fiscal Year 2024 includes a provision for GAO to consider the implications of data rights on logistics, as well as certain data rights contractual differences between DOD programs.[4] This report examines (1) how selected DOD weapon systems in sustainment planned for intellectual property (IP) acquisition and the technical data they procured, (2) the data deliverables those programs received, as well as the process they used to review and track those deliverables at the program level and across DOD, and (3) what challenges, if any, selected programs faced in sustainment due to data rights shortfalls, as well as how programs addressed those challenges.

To determine how selected DOD weapon systems planned for IP and technical data acquisition in sustainment, we selected a non-generalizable sample of five major weapon systems in sustainment with data rights issues previously reported by GAO and others, across

[3]S. Rep. No. 118-58, at 191 (2023).
[4]H. Rep. No. 118-301, at 1149 (2023).

services and components and system domain.[5] The selected systems were:

- F/A-18 fighter aircraft
- F-35 fighter aircraft
- Littoral Combat Ship (LCS)
- Stryker Combat Vehicle[6]
- *Virginia*-class Submarine

We reviewed these programs' IP strategies, if available, as well as acquisition strategies and life cycle sustainment plans (LCSP).[7] We reviewed relevant DOD guidance on such strategies, including DOD Instruction (DODI) 5010.44 on IP Strategies and 5000.91 on Product Support Management, among others. We spoke with program officials from all five program offices and from the Office of the Secretary of Defense (OSD) IP Cadre (IP Cadre). The IP Cadre serves as a focal point of the DOD-wide federated model established to coordinate IP advising, support, and resource throughout OSD, the military departments and other DOD components. We compared the IP Cadre's efforts to develop guidance for programs in sustainment with standards outlined in *Standards for Internal Control in the Federal Government*.[8] Of specific

[5]Our "major weapon systems" were based on DOD's Major Defense Acquisition Programs and the DOD Comptroller's 2023 report, "Program Acquisition Cost by Weapon System." Major defense acquisition programs are those identified by DOD or that have a dollar value for all increments estimated to require eventual total expenditure for research, development, test, and evaluation of more than $525 million, or for procurement of more than $3.065 billion, in fiscal year 2020 constant dollars. Department of Defense, *Major Capability Acquisition,* DOD Instruction 5000.85 (Aug. 6, 2020) (Change 1, Nov. 4, 2021). See also 10 U.S.C. § 4201. We used previous GAO reports that discussed data rights challenges facing systems, as well as news articles, to build a "universe" of programs from which to select systems. We only included systems already fielded by DOD and that require sustainment support. Finally, we selected at least one system from each military department and at least one from each domain (land, air, and sea).

[6]For the purposes of this report, we discuss the Stryker base vehicle for which the contractor is General Dynamics Land Systems and the Stryker Medium Caliber Weapon System (MCWS). The MCWS variant of the Stryker family of systems has two relevant components: the base vehicle and the 30-mm turret. In this report, when we discuss the MCWS acquisition, we are referring specifically to the integration and production contract performed by Oshkosh Defense unless otherwise noted.

[7]LCSPs are detailed product support plans that include sustainment metrics, risks, costs, and analyses and are the primary program management reference governing operations and support planning and execution from program inception to disposal and are required by 10 U.S.C. § 4324(b).

[8]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: Sept. 10, 2014).

relevance were internal control principles that direct agencies to provide quality information to their internal components.

To determine what data deliverables selected programs received, we asked programs to identify contracts where they had procured technical data and to identify contract data requirements lists (CDRL) where technical data was delivered.[9] However, not all of the programs could provide enough information to complete the analysis. To determine how selected programs reviewed and tracked their data deliverables, as well as DOD's effort to develop tools to assist in this process, we reviewed the current DOD manual on the acquisition and management of technical data and then compared the future versions of that manual to determine if forthcoming guidance would address the development of new tools. We interviewed all five program offices and maintainers to determine their data deliverable review procedures, and any challenges associated with that process. Finally, we spoke with officials responsible for developing automated tools to assist programs with data deliverable review and management. We assessed DOD's effort to create these tools against DOD guidance and *Standards for Internal Control in the Federal Government*. Of specific relevance were internal control principles on designing activities for entities' information systems.

To determine what challenges, if any, programs in sustainment faced due to data rights shortfalls, and how they addressed those challenges, we spoke with maintainers and program office officials for each of the five selected programs. We asked them about the effect of technical data and data rights shortfalls on maintenance and the efforts of maintainers and program offices to overcome those challenges. We also interviewed command-level and IP Cadre officials at OSD and in the military departments about efforts to collect lessons learned from programs in sustainment and assessed those efforts against DOD policy and guidance.

[9]There are broad ongoing efforts to reform federal and defense acquisitions. Specifically, Exec. Order No. 14,265, 90 Fed. Reg. 15,621 (Apr. 9, 2025) calls for a comprehensive overhaul of the defense acquisition system. In response, the Secretary of Defense and military components are directed to formulate plans to reform acquisition processes and assess major programs. Similarly, another April 2025 executive order directs agencies to streamline the federal acquisition regulations that govern federal procurement. Exec. Order No. 14,275, 90 Fed. Reg. 16,445 (Apr. 18, 2025). Those efforts are ongoing and are scheduled to be completed by October 2025. The FAR and DFARS sections referenced in this report reflect the versions of the FAR in effect at the time the audit was conducted, and do not reflect the deviations to the FAR that are in effect.

We conducted this performance audit from March 2024 to September 2025 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

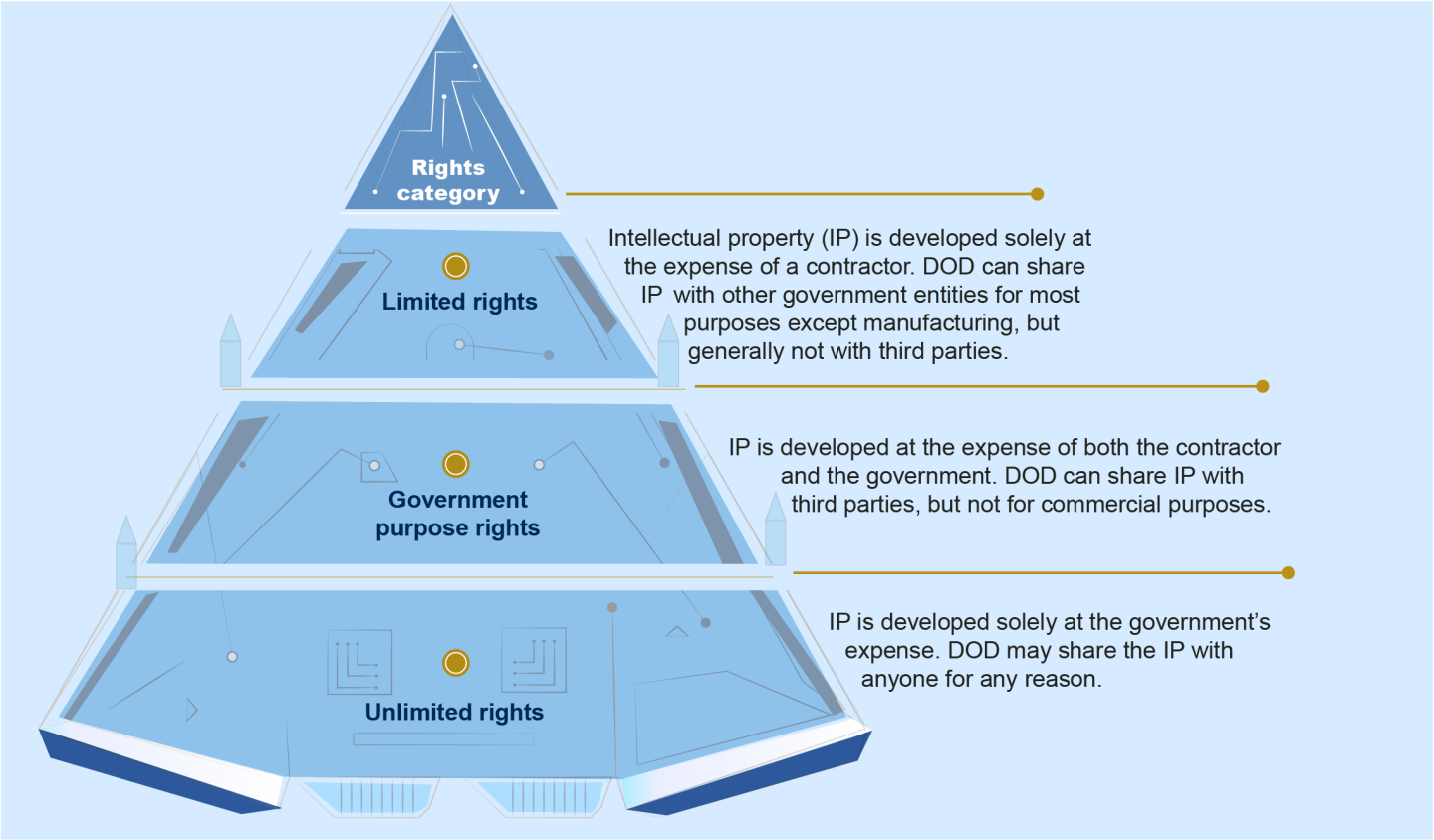
Intellectual Property and Data Rights

As commercial companies develop or produce weapon systems for DOD, they create IP including technical data and computer software. DOD may receive non-exclusive license rights—or data rights—to some of this IP. These data rights dictate the extent to which DOD may use or distribute the IP.

Data rights are generally determined by the source of funds used to develop the relevant IP. DOD is granted unlimited rights to IP developed exclusively with government funds and narrower data rights for IP developed at private expense. Additionally, as previously noted, statute grants DOD unlimited rights to form, fit, and function data. DOD is also granted unlimited rights to data necessary for operation, maintenance, installation, and training purposes, other than detailed manufacturing or process data. Figure 1 below outlines some of the categories of data rights granted under DOD contracts.[10]

[10]Other transaction agreements are not FAR-based procurement contracts, but IP is an important part of planning and implementing other transaction agreements. The government has greater flexibility to negotiate IP terms for other transaction agreements than in traditional procurement contracts. See Department of Defense, *Other Transactions Guide*, Version 2.0 (July 2023).

Figure 1: Categories of Data Rights



Source: GAO analysis of Department of Defense (DOD) documentation; GAO illustration. | GAO-25-107468

Having more data rights allows the government more flexibility to conduct organic (i.e., government managed) maintenance on weapon systems or to competitively procure maintenance services or replacement components.

Beyond this framework, DOD programs may also pursue specifically negotiated license rights (SNLR) or rights to the technical data that differ from the previously described rights categories.[11] SNLR agreements can

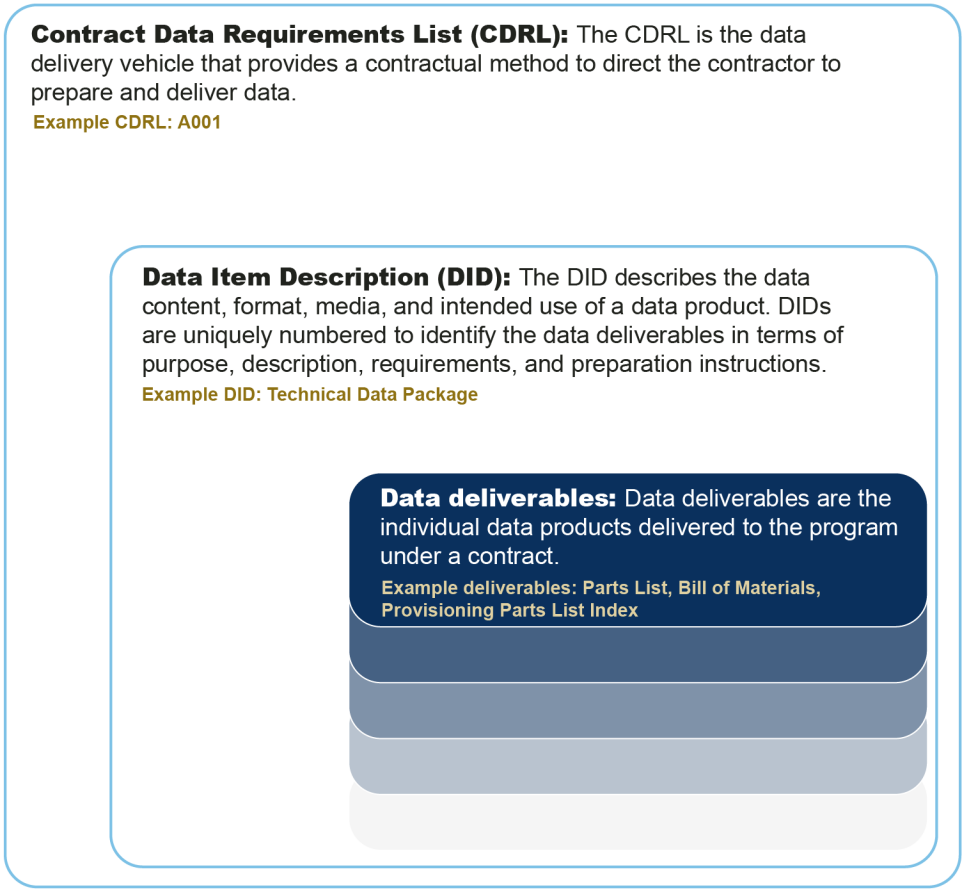
[11]SNLR may also refer to the colloquial term "Specially Negotiated License Rights." For the purposes of this report, SNLR means "Specifically Negotiated License Rights." 10 U.S.C. § 3774, DFAR 227.7103-5(d).

provide additional rights beyond what is listed in regulation, DOD may not accept less than limited rights in technical data.[12]

Procurement and Delivery of Technical Data

Technical data is generally procured by weapon programs using CDRLs under a program's contract(s).[13] CDRLs identify programs' deliverable data requirements. Programs can have many CDRLs under a single contract and each CDRL item can contain many individual data deliverables, some of which may be technical data deliverables, as shown in figure 2.

Figure 2: Notional Data Deliverables Under a Contract Data Requirements List



Source: GAO Analysis of DOD and Defense Acquisition University (DAU) Information. | GAO-25-107468

Programs procure some, but not all, technical data they need as part of a technical data package (TDP) which is outlined in the programs'

[12]10 U.S.C. § 3774, DFARS 227.7103-5(d)(1).
[13] See DFARS 215.470(b)

contracts.[14] TDPs define the physical and functional characteristics of an item. How much detail a TDP provides on these elements is determined by what level TDP programs procure. Table 1 details TDP levels programs can procure.

Table 1: Technical Data Package (TDP) Levels

Level	Description
Conceptual	Defines design concepts and includes the appropriate information required for analysis and evaluation of those concepts. The data will generally consist of simple sketches/models, artist renderings and/or basic textual data. The data may consist of the system performance specification and conceptual design data as specified by the contract.
Developmental	Provides sufficient data to support the analysis of a specific design approach, the fabrication of prototype materiel for test or experimentation, and limited production by the original design activity or with assistance from the original design activity. The data may consist of the unique item specifications for all system configuration items and developmental design data and any required associated lists as specified by the contract.
Product	Provides the information necessary to fully define the item and enable the procurement or manufacture of an item. The product is defined to the extent necessary for a competent manufacturer to produce an item, which duplicates the physical, interface, and functional characteristics of the original product, without additional design engineering effort or recourse to the original or current design activity. Product data shall reflect the approved, tested, and accepted configuration of the defined delivered item.

Source: Department of Defense Standard Practice: Technical Data Packages, MIL-STD-31000C. I GAO-25-107468

The level of detail provided in a TDP can influence the level of maintenance DOD can accomplish organically.

DOD recognizes two levels of maintenance: field-level and depot-level maintenance.

- Field-level maintenance includes organizational and intermediate maintenance. Organizational maintenance includes inspections, servicing, handling, preventive and corrective maintenance. Intermediate maintenance includes assembly and disassembly beyond the capability of the organizational level.
- Depot-level maintenance includes any action performed on materiel or software in the conduct of inspection, repair, overhaul, or the modification or rebuild of end-items, assemblies, subassemblies, and parts. Additionally, depot-level maintenance generally requires extensive industrial facilities, specialized tools and equipment, or

[14]CDRLs also include a data item description that specifies content and formatting requirements for data deliverables under the CDRL. A TDP is one type of data item description, but programs may also obtain additional data item descriptions that support sustainment—for example Product Engineering Design Data and Associated Lists.

uniquely experienced and trained personnel that are not available in lower-level maintenance activities.

If programs do not align the level of TDP(s) they procure with their depot-level maintenance requirements, maintainers may not be able to complete those requirements organically.[15]

Data Rights Requirements for Weapon Systems Maintenance and Sustainment

DOD programs are expected to plan for the IP and data rights necessary to maintain their systems consistent with the guidance provided by DOD instructions governing weapon systems acquisition processes, intellectual property, and product support management.[16] For example, DOD Instruction 5010.44 Intellectual Property Acquisition and Licensing, requires program offices to develop intellectual property strategies that identify how programs plan to meet data requirements for the whole program and for the life of the program. IP strategies provide a framework that maps use cases for data to execute plans and deliverables that address risks, issues, and opportunities for how to satisfy those requirements.

DOD's approach to IP in its guidance and policies has evolved over time. It should therefore be expected that acquisition programs' approaches to IP and data rights may vary depending on when the program started. Notably, in the past, DOD often favored contractor supported sustainment. Under this approach, the amount of technical data programs required to support sustainment activities was limited. However, sustainment cost growth and statutory changes have influenced DOD to change its approach to maintaining and sustaining its own weapon systems, and the data rights needed to support those functions. For additional information on these statutory developments see appendix I.

Roles and Responsibilities for IP and Data Rights at DOD

DOD Instruction 5010.44, issued in 2019, assigned responsibility for various aspects of DOD's IP policy to a variety of DOD officials and established the IP Cadre. Table 2 below outlines some key roles and responsibilities identified in the instruction.

[15]Title 10 U.S.C. § 2466(a) prohibits DOD from spending more than 50 percent of its annual depot-level maintenance funds on contracting with non-federal entities in a given fiscal year.

[16]Department of Defense, *Operation of the Adaptive Acquisition Framework*, DOD Instruction 5000.02 (Jan. 23, 2020) (incorporating change 1 June 8, 2022); *Intellectual Property and Licensing*, DOD Instruction 5010.44 (Oct. 16, 2019); and *Product Support Management for the Adaptive Acquisition Framework*, DOD Instruction 5000.91 (Nov. 12, 2021).

Table 2: Department of Defense (DOD) Roles and Responsibilities for Intellectual Property (IP)

Role	Responsibilities
Assistant Secretary of Defense for Acquisition	• Serves as the senior DOD official overseeing the development and implementation of DOD IP policy and guidance. • Establishes an appropriate leadership structure and office for the IP Cadre. • Ensures the Cadre has the appropriate number of staff and such staff possesses the necessary skills, knowledge, and experience to carry its duties, including in relevant areas of law, program management, contracting, acquisition, logistics, configuration management, engineering, financial analysis, and valuation.
General Counsel of the Department of Defense	• Provides legal advice and services in support of the IP Cadre.
Component Heads with Acquisition Authority or Contract Administrative Responsibilities	• Facilitate coordination and consistency across DOD in strategies for determining the IP deliverables and IP rights necessary for operation, maintenance, modernization, and sustainment. • Establish and maintain IP management procedures to ensure that time-sensitive actions are executed as appropriate, e.g. inspection and acceptance of IP deliverables, challenge and validation of asserted restrictions on deliverable IP, exercise of time-limited contract options for IP deliverables or IP rights.
Director, OSD IP Cadre (IP Cadre)	• Provides oversight and coordination on all acquisition and licensing policy and procedures for DOD IP. • Identifies and distribute best practices.
Members, IP Cadre	• Advise and assist in the development of an acquisition strategy, product support strategy, and IP strategy for a system. • Assist program offices in drafting relevant IP provisions in solicitations, contracts, other transaction agreements, and licenses. • Address the management of IP deliverables and IP rights to support the creation and sustainment of a competitive environment, from program inception through sustainment. • Facilitate coordination and consistency across the DOD in strategies for determining the IP deliverables and IP rights necessary for operation, maintenance, modernization, and sustainment.

Source: DOD Instruction 5010.44. I GAO-25-107468

Prior Reporting on DOD IP and Data Rights

We have previously reported on DOD's challenges related to how it approaches IP.[17] For example, in November 2021, we found that DOD faced uncertainty related to several areas including: funding and staffing for the IP Cadre, coordination between the IP Cadre and other DOD experts, and a lack of expertise within DOD on IP valuation and financial analysis.[18] We made four recommendations to DOD to improve how DOD

[17]A list of related reports is included at the end of this report.
[18]GAO, *Defense Acquisitions: DOD Should Take Additional Actions to Improve How It Approaches Intellectual Property*, GAO-22-104752 (Washington, D.C.: Nov. 30, 2021).

approaches IP. DOD concurred with the recommendations, and as of September 2025 has implemented three of the four.[19]

Our work on specific weapon systems' sustainment has also consistently found that programs face myriad challenges when it comes to IP and data including for example, impacts to aircraft availability due to technical data access issues, and deficiencies in IP planning for 11 different shipbuilding programs that contributed to sustainment challenges.[20] These challenges are a persistent hindrance to programs' abilities to maintain their systems. In 2014 we reported that the F-35 program lacked an intellectual property strategy. We recommended DOD develop an IP strategy to help improve sustainment.[21] The program released its IP strategy in July 2025. Similarly, in 2022, we found that the Navy faced challenges implementing its maintenance approach for LCS including, among other things determining how to obtain technical data that Navy personnel will need to perform maintenance tasks. We recommended that the Navy conduct a study to determine, among other things, how to obtain technical data needed to perform maintenance.[22] However, that recommendation was deemed no longer valid in 2024 due to changes the Navy made in its crewing structure in response to provisions in the fiscal year 2023 National Defense Authorization Act.

[19]As of September 2025, DOD had implemented our recommendations to: (1) ensure that the Director of the IP Cadre collaborates with the President of the Defense Acquisition University to prioritize IP-related tasks that the Defense Acquisition University should undertake between 2023 and 2025; (2) that the Undersecretary of Defense for Acquisition and Sustainment ensure that DOD's planned IP guidebook clarifies how DOD personnel can pursue detailed manufacturing and process data; and (3) that the Secretary of Defense should determine the collaboration, staffing, and resources needed within the Office of the Secretary of Defense and across the components to execute the federated approach for the IP Cadre. We made one additional recommendation 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 Directors of Acquisition Career Management identify the DOD personnel in key career fields that would benefit most from receiving IP training and credentials, which remains open.

[20]GAO, *Weapon System Sustainment: Aircraft Mission Capable Goals Were Generally Not Met and Sustainment Costs Varied by Aircraft*, GAO-23-106217 (Washington, D.C.: Nov. 10, 2022) and *Navy Shipbuilding: Increasing Focus on Sustainment Early in the Acquisition Process Could Save Billions*, GAO-20-2 (Washington, D.C.: Mar. 24, 2020).

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

[22]GAO, *Littoral Combat Ship: Actions Needed to Address Significant Operational Challenges and Implement Planned Sustainment Approach*, GAO-22-105387 (Washington, D.C. Feb. 24, 2022).

Additionally, in recent years, DOD has been required to report on a variety of its IP and data rights issues.[23] One such report included findings from a data call to more than 200 programs in sustainment on data rights challenges they faced and the practices they employed to address such challenges.[24] Specifically, the data call found:

- Half of respondents experienced deficiencies in terms of data and data rights that resulted in obstacles for competitive procurement and organic sustainment.
- Respondents indicated that a majority of justifications for sole source contracts were based on inadequate technical data, software, or license rights.[25]
- Most respondents indicated they were not able to resolve barriers they faced to obtaining deliverables or securing license rights that satisfy the government's needs.
- Nearly half of respondents reported that the proposed cost for acquiring technical data, software, or associated license rights was not deemed fair and reasonable.

DOD Guidance Does Not Fully Address IP Planning in Sustainment

Statute requires that programs plan for IP throughout the program life cycle by completing an IP strategy. As previously noted, IP strategies are intended to identify how programs plan to meet data requirements for the life of the program and provide a strategic framework that maps use cases for data to execute plans and deliverables that address risks, issues, and opportunities for how to satisfy those requirements. Table 3 identifies the statutory IP planning requirements for DOD programs.

[23]DOD was required to submit an annual report assessing IP evaluation techniques, including commercial valuation methods, in DOD acquisition programs to better understand the benefits of certain mechanisms pursuant to Pub. L. 116–92, § 801 (2019).
[24]Department of Defense, *Report to Congress on Pilot Program on Intellectual Property Evaluation for Acquisition Programs Report for Fiscal Year 2022 Pursuant to Section 801 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116-92)*, (November 2022).
[25]Contracts awarded using other than full and open competition must be generally supported by written justifications that provide sufficient facts and rationale to justify the specific exception to full and open competition that is being applied to the procurement. These justifications must be approved in writing by specific officials, depending on the dollar value of the procurement. See FAR 2.101, 6.304; DFARS 206.304.

Table 3: Intellectual Property (IP) Planning Requirements for Department of Defense programs

Source	10 U.S.C. § 4324(b)	10 U.S.C. § 3774(a)
Requirement	"Before granting Milestone B approval (or the equivalent) the milestone decision authority shall ensure that each covered system has an appropriate sustainment plan…The lifecycle sustainment plan will include…an intellectual property management plan for product support, including requirements for technical data, software, and modular open system approaches."	The Secretary of Defense shall require program managers for major weapon systems and subsystems of major weapon systems to assess the long-term technical data needs of such systems and subsystems and establish corresponding acquisition strategies that provide for technical data rights needed to sustain such systems and subsystems over their life cycle.

Source: GAO analysis of statutory information. I GAO-25-107468

Two DOD instructions, 5010.44 and 5000.91, address these IP planning requirements.[26] Table 4 details these policy requirements.

Table 4: Intellectual Property (IP) Planning Requirements in Department of Defense (DOD) Policy

Source	DOD Instruction 5010.44	DOD Instruction 5000.91
Requirement	Each DOD program will have a robust IP strategy to identify and manage the full spectrum of IP and related matters (e.g. technical data and computer software deliverables, patented technology, and license rights) from the inception of a program and updated throughout the entire product life cycle—initially as part of the acquisition strategy, and during the operations and support phase as part of the life-cycle sustainment plan (LCSP).	1) For covered systems, a detailed LCSP will include: "…a technical data and IP management plan for product support." 2) A tailored LCSP may be used for all systems that are not covered, "…a tailored LCSP will include…description of IP (e.g. technical data and software deliverables and associated license rights) necessary to enable cost-effective product support."

Source: GAO analysis of DOD policy information. I GAO-25-107468

Four of the 5 programs we selected had IP strategies. One program, F/A-18, has yet to complete an IP strategy and officials explained that its most recent LCSP was in development prior to the release of DODI 5000.91. They added that subsequent LCSP updates will include an IP strategy.

[26]Department of Defense, DOD Instruction 5000.44, Intellectual Property (IP) Acquisition and Licensing (Oct. 16, 2019); Department of Defense, DOD Instruction 5000.91, Product Support Management for the Adaptive Acquisition Framework (Nov. 4, 2021).

We found that none of the selected programs that completed IP strategies included all of the elements required by DODI 5010.44.[27]

The IP Cadre recently released supplemental guidance to assist programs' IP planning. We found, however, that this guidance directs officials to consider sustainment during their IP planning process generally, but does not address how programs already in sustainment can identify and maximize opportunities to obtain data rights during the sustainment phase, such as those created through modernization and system upgrades. Specifically, in April 2025, the IP Cadre released the Intellectual Property Guidebook for DOD Acquisition.[28] We found that while the guidebook contains some information on planning for system upgrades and modernization, it generally does so in the context of programs early in the acquisition process, not in sustainment. Additionally, in January 2025 the IP Cadre released the IP for Product Support Toolkit, but it contains only one sample scenario specific to legacy programs.[29] That scenario suggests replacing problematic components with new items to procure additional technical data and does not address other approaches by which programs in sustainment could pursue the technical data and data rights they need. IP Cadre officials told us that they focused on programs earlier in the acquisition process when developing the guidance because that is the point at which programs have the most leverage to procure technical data and data rights.

However, we found that each program we selected procured or planned to procure some technical data. Specifically:

- **F/A-18:** The program purchased a product level TDP as part of the procurement for the last production lot of aircraft.

[27]DODI 5010.44 states that IP strategies will include among other things, "…the IP planning elements required by Paragraph (S-70) of Section 207.106 of the Defense Federal Acquisition Regulation Supplement." DFARS 207.106 Paragraph (S-70) specifies that these elements are to be included in acquisition plans. As the IP strategies of our selected programs reside within the programs' LCSPs, we did not assess whether selected programs addressed this requirement in their strategies.
[28]Office of the Under Secretary for Defense for Acquisition and Sustainment, Intellectual Property Guidebook for DOD Acquisition (Apr. 30, 2025).
[29]The Life Cycle Product Support Planning: Intellectual Property (IP) for Product Support Toolkit was created by the IP Cadre in collaboration with the Office of the Deputy Assistant Secretary of Defense for Product Support and multidisciplinary subject matter experts from the military departments. See: https://www.dau.edu/tools/intellectual-property-ip-product-support-ps-toolkit

- **F-35:** As of March 2025, officials told us that, the program was in the process of procuring an illustrated parts breakdown for the aircraft.
- **Littoral Combat Ship:** Beginning with contracts for LCS 5 and 6, the program indicated it obtained TDPs for both ship variants that "…include all data that is useable to construct, integrate, test, trial and deliver an LCS without assistance from the developer of the TDP or the Government" but the contracts did not explicitly define the level of the TDPs.
- **Stryker:** The program obtained a complete product level TDP for the Medium Caliber Weapon System (MCWS) integration.
- ***Virginia*-class submarine:** Program procured CDRL items in various contracts necessary to accomplish design, construction, long-term life-cycle support activities, and support potential future competition for continued design, production, and sustainment of the system.

Some officials from our selected programs noted that the programs also obtained additional technical data and data rights as platforms were upgraded and modernized. For example, Stryker officials noted that they have been acquiring technical data and data rights for the platform through engineering changes.

According to *Standards for Internal Control in the Federal Government*, management should provide quality information to their internal components.[30] Additional information could better inform programs in sustainment about the courses of action available to them to obtain IP and data rights later in the programs' lifecycles. This could, in turn, enable DOD to develop more organic sustainment capacity or allow DOD to competitively procure sustainment support, potentially reducing overall sustainment costs.

Selected Programs and DOD Have Challenges Adequately Reviewing Data Deliverables

The thousands of data deliverables that DOD weapon programs receive from contractors over their life cycle make reviewing and tracking these deliverables challenging. Programs must take time and resource intensive steps to review and accept or reject the deliverables they receive. DOD has taken some steps to employ automated tools to improve this process, but these efforts are fragmented and have recently lost funding from DOD.

[30]GAO-14-704G.

Programs Have Challenges Reviewing Deliverables Due to Volume and Complexity

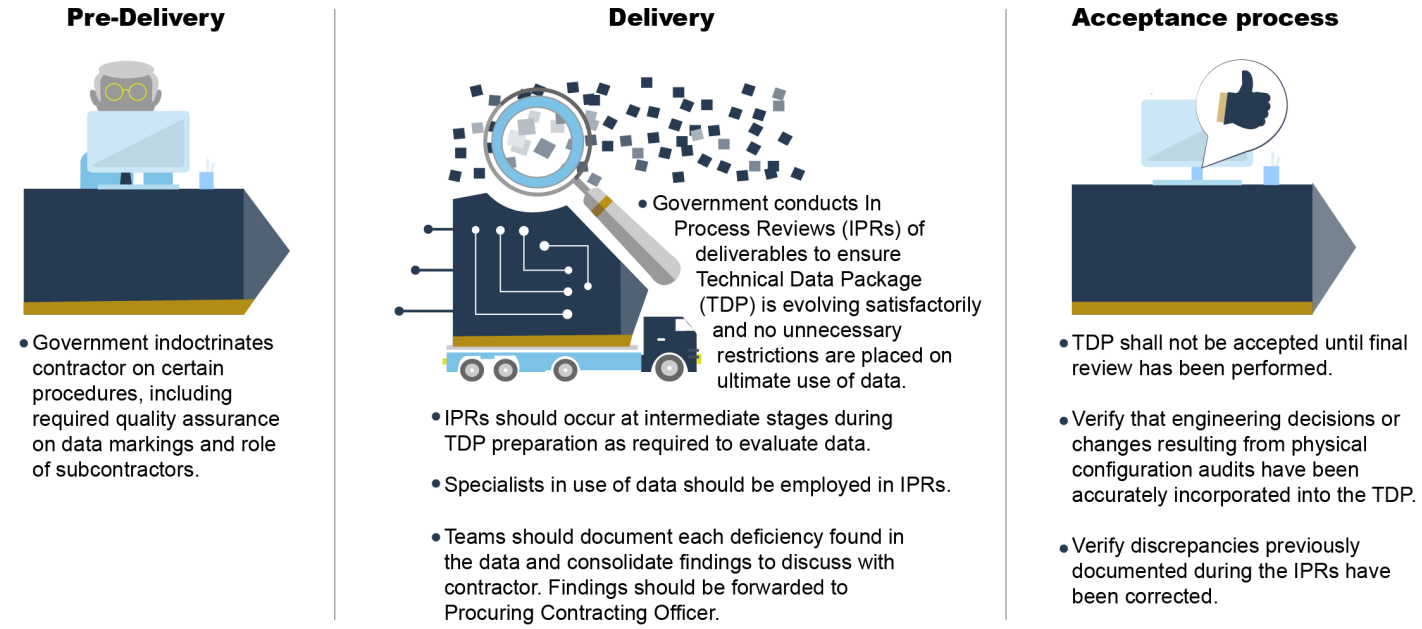
In general, officials told us they experienced challenges reviewing data deliverables due to the complexity of their systems and the volume of deliverables involved. All the programs we selected indicated that fully reviewing all data deliverables for accuracy and completeness was time and resource intensive. Two programs noted they had full time personnel dedicated to reviewing deliverables, while three other programs reported they have officials reviewing data deliverables as one part of their duties.

DOD policy provides a broad framework for how data deliverables should be reviewed and assigns responsibility to various officials and organizations.[31] Ultimately, however, programs must develop specific review procedures for their deliverables to ensure both completeness and accuracy. Specifically, DOD Manual 5010.12-M states that DOD activities must have procedures for technical validation, inspection, and acceptance of data. DOD program offices must implement those procedures using technically qualified personnel and equipment. Additionally, contract administrative offices must evaluate and monitor the contractor's procedures for complying with contract requirements regarding markings that restrict how data can be shared within DOD and with third parties.[32]

DOD 5010.12-M also provides further review procedures for programs to follow before, during, and after formal delivery.[33] Figure 3 shows the steps involved with the process, including during pre-delivery, delivery, and acceptance.

[31]Department of Defense, *Procedures for the Acquisition and Management of Technical Data,* DOD 5010.12-M. (May 14, 1993) (incorporating change 1, Aug. 31, 2018).
[32]Markings include limited rights, government purpose rights, and special license rights, among others. The government has unlimited rights to documents that do not include markings. See figure 1 for more detail.
[33]In addition to DOD Manual 5010.12-M, DFARS provides additional information on the inspection and acceptance of delivered data. See for example: DFARS 227.7103-12, DFARS 227.7103-14, DFARS 227.7203-12, and DFARS 227.7203-14.

Figure 3: Systematic Review Procedure for Data Deliverables



Source: Department of Defense 5010.12-M (being updated as of July 2025); GAO illustration. | GAO-25-107468

All our selected programs reported they obtained technical data such as engineering drawings and technical manuals. For example, the Stryker program reported several technical data CDRLs that resulted in at least 1,274 individual data deliverables under the MCWS integration contract.

Selected programs had varying processes by which they reviewed the data deliverables they procured.

- **F/A-18:** Program officials told us they use a sampling approach to review contractor deliverables. Under this method, two program personnel sampled 5 percent of deliverables provided in each data delivery. If those officials found any errors, they rejected the entire delivery back to the contractor for correction. Officials said the program had an 80 percent rejection rate of data deliveries due to improper markings affixed by the contractor. This streamlined the review process and allowed the program to meet required review time frames.
- **F-35:** Program officials reported that their data management team conducts an initial review of documentation for contract number, type of deliverable, and proprietary markings, among other things.

However, one official noted that the data the program reviews are often out of date, as they receive only official delivery of static data out of the contractor's systems. To use or review current data, they contract for access to the contractor's systems.

- **Littoral Combat Ship:** According to officials, the LCS data manager coordinates the review of data deliverables amongst several stakeholders, including engineers and the data review team. The data manager verifies the delivery of data matches contract requirements and works with the shipbuilder to resolve any improper or non-conforming markings.
- **Stryker:** Army officials told us the Stryker program office funded four Army personnel to review the contractor's technical data deliveries for both the Stryker Base Vehicle contract and the MCWS contract. Three reviewed deliverables for the Stryker base vehicle and one reviewed MCWS-specific deliverables.
- ***Virginia*-class Submarine:** Officials from the *Virginia*-class program told us there is no dedicated team reviewing data deliverables. Instead, the program delegates review to *Virginia*-class design yard engineers, Supervisors of Shipbuilding, or to Naval Sea Systems Command officials.[34] These officials are responsible for accepting or rejecting data deliverables.

Even with these processes, program officials struggled to fully review all the data deliverables they received. Specifically, programs faced challenges in tracking delivered data and data rights and fully reviewing all deliverables in a timely manner.

- **Tracking delivered data and data rights:** Program officials told us they use data management systems to help track CDRL item deliveries. For example, F-35 officials told us they employ a Navy-owned system called the Acquisition Management System that provides a central repository for data deliverables and enables program officials to see what data rights were in the program's contract. However, according to officials, these systems are intended to manage information at the CDRL level. As such, they struggle to handle the complexities of data rights licenses for individual deliverables.

[34]The Supervisors of Shipbuilding, Conversion and Repair serve as the Navy's on-site technical, contractual, and business authority for the construction of Navy vessels at major private shipyards.

- **Fully reviewing all deliverables:** *Virginia*-class officials noted they do not review all markings for every deliverable. Furthermore, *Virginia*-class officials told us that, due to the many subsystems and components on their system, they had challenges verifying all contractor data deliverables for completeness and accuracy. F/A-18 officials also said they had challenges reviewing all deliverables. The program has a robust sampling process in place, but officials reported this process was labor intensive and required many hours per week to properly review deliverables. Additionally, officials in the Stryker program office were unsure if the program reviewed all the data deliverables it received.

These challenges in tracking and fully reviewing deliverables can cause issues for programs. For example, missing or improperly marked deliverables can lead to delays in government acceptance of data deliverables. Depending on the number of deliverables involved and the nature of the correction, programs may have to engage in extensive negotiations with the contractor to attempt to resolve disputes. Additionally, maintainers may discover data deliverables are missing or improperly marked, requiring the program office to attempt to ensure the contractor corrects the issue. Program officials we spoke with indicated that the correction process can be lengthy, in some cases, months or years, which may contribute to schedule delays. Finally, if the program does not properly document which data rights it purchased, it may repurchase the same rights years later.

Current guidance in DOD 5010.12-M dates from 1993 and does not encourage programs to use modern technology in their data delivery processes. However, DOD officials are in the process of updating the DOD manual on the management of data delivery.[35] Officials said they expected this updated guidance to be complete by July 2025, but it had not yet been released as of September 2025. The draft we reviewed emphasizes the importance of digital delivery for data deliverables to ensure data is properly received, used, stored, and maintained. Specifically, the new guidance instructs programs to use modern information technology wherever possible to receive data deliverables.[36] However, because the guidance is still unpublished, it is too early to tell

[35]Officials are in the process of updating Department of Defense, *Procedures for the Acquisition and Management of Technical Data,* DOD 5010.12-M. (May 14, 1993) (incorporating change 1, August 31, 2018).
[36]Draft Department of Defense, *Acquisition and Management of Contractor-Prepared Data,* DOD Manual 5010.12 (Unreleased).

whether modern information technology will provide programs a more efficient alternative to current manual review processes.

DOD Efforts to Develop Data Rights Tools Are Not Coordinated at the Enterprise Level

Forthcoming guidance encourages programs to use modern technology to facilitate the delivery of data deliverables, but DOD has experienced challenges in developing technology to enable digital delivery and review of contract data deliverables. Just as our selected programs are unable to fully track the data deliverables they receive, DOD similarly cannot track data deliverables and associated rights at the enterprise level.[37] We identified several efforts undertaken by individual offices to develop tools to assist with the deliverable review process and tracking data rights across programs, which vary in their maturity. For example:

- **Intellectual Property Rights Module:** The Air Force's Data Analytics Resource Team (DART) developed the Intellectual Property Rights Module (IPR Module) as a contract analytics tool designed to extract data from enterprise contracting databases. This tool analyzes Air Force and Space Force contracts and technical orders to help programs determine exactly what technical data they own. By automating this review, officials reported the tool can help programs save hours of manual contract file reviews. According to officials, the IPR Module has already assisted several Air Force programs. For example, the IPR Module helped the F-15 program determine, based on the program's historical contract documents, that there were no data rights restrictions for a part that the program needed. This enabled the F-15 program to determine that the government had full rights to a problematic part. Additionally, the IPR Module helped the RQ-4 Global Hawk program review thousands of contract documents to determine which technical data the government had rights to. The program reported an estimated $1.75 million in labor hour savings due to this effort.

- **Data Rights Sustainment and Acquisition Validation Engine:** Within Naval Air Systems Command (NAVAIR), officials are developing a tool called the Data Rights Sustainment and Acquisition Validation Engine (DRSAVE). According to officials, DRSAVE is designed to be a repository of previously purchased

[37]We previously reported that the IP Cadre was developing an artificial intelligence tool to scrape previously purchased data rights from DOD contracting databases. However, officials told us the effort was not funded by DOD and had been canceled. See GAO-22-104752.

data rights accessible to NAVAIR programs. NAVAIR officials have been developing DRSAVE to track data rights down to individual part numbers within a weapon system. For example, officials said DRSAVE will allow users to cross reference their systems' part numbers and enable programs to order parts with better knowledge and understanding of the associated data rights. DRSAVE also enables engineering and logistics personnel to view and track the data rights NAVAIR received from original equipment manufacturers (OEM). Finally, officials reported that as NAVAIR initiates new programs, they will be able to leverage DRSAVE to review previously purchased data rights on other programs. According to officials, the CH-53K program is currently testing DRSAVE, and NAVAIR expects to launch the tool for other NAVAIR programs in summer 2026.

- **Odin-Data Rights:** Odin-Data Rights (Odin-DR) is a tool designed to automate reviews of data deliverables against the contract using artificial intelligence. The Air Force's T-7 Redhawk program contracted with a small business to develop this tool. T-7 officials told us that it demonstrated potential to efficiently and accurately compare data deliverables with data assertion lists and delivery requirements. However, program officials also told us T-7 was not far enough along in the acquisition process to fully benefit from Odin-DR and subsequently decided not to proceed with the acquisition. In September 2024, officials reported the Army's XM30 program also contracted to use Odin-DR to manage its data deliverable review process.

While DART and DRSAVE officials reported their tools were well received by various weapon programs, they are not currently widely available. Specifically, DRSAVE is still undergoing testing and is not widely used by NAVAIR systems. DRSAVE officials noted they are still working to build support for the tool within NAVAIR and raise awareness of its utility to NAVAIR program offices. According to officials, one drawback of DRSAVE is that it relies on individual logisticians to enter information into the tool for data rights based on the data assertion list. Officials clarified, however, that the tool automatically updates basic component data such as part numbers, among other things. DRSAVE officials noted they had briefed the IP Cadre on the capabilities of DRSAVE and encouraged the IP Cadre to include DRSAVE in its now published IP guidebook. IP Cadre officials told us they had not taken any action with respect to the program as they were still waiting for it to mature.

Both the DART IPR Module and the Odin-DR tool have faced challenges due to lack of funding. DART officials explained that because the tools address enterprise-level issues, individual programs or offices do not want to fund these efforts. As of February 2025, the IPR Module was offline and was only accessible to the DART team, not individual programs. The Army's XM30 program also reported that it ended its contract with Odin-DR's developers because it found more economical options.

IP Cadre officials noted they monitor tools being developed by the military departments (such as those described above) and are waiting for these tools to mature before they endorse a solution. *Standards for Internal Control in the Federal Government* state that management should design the entity's information system and related control activities to achieve objectives and respond to risks. This includes evaluating information processing objectives to meet information requirements and designing information technology infrastructure to support the completeness, accuracy, and validity of information processing.[38] As previously noted, the IP Cadre is responsible for coordinating IP deliverable strategies across DOD and providing resources to DOD components on IP matters.[39] Until DOD assesses the tools available to assist in the collection and review of data deliverables, the department's efforts to do so may remain fragmented. Without such tools programs may continue to struggle to ensure they receive the data deliverables they procure. DOD may also miss opportunities to leverage common data deliverables among systems, potentially increasing upfront procurement costs across platforms.

Data Rights Challenges Can Drive Up Costs and Lengthen Repairs

The five programs we selected indicated they rely on sole source, non-competitive contracts and lack data rights for military services to perform depot-level sustainment. This can drive up costs and lengthen time frames for repairs. The five programs have developed ad hoc solutions to address their reliance on sole source suppliers, and workarounds to mitigate cost and schedule effects. DOD, however, has not comprehensively collected lessons learned to address IP challenges during sustainment.

[38]GAO-14-704G.
[39]DODI 5010.44.

Programs Are Reliant on Sole Source Contracts for Program Maintenance

The five programs we selected experienced vendor lock when it came to maintenance activities. Vendor lock occurs when, due to a lack of procured technical data and rights to that data, programs must rely on OEMs or the prime contractor to meet their sustainment needs through sole source contracts. Officials from the five selected programs told us that vendor lock can lead to maintenance delays due to OEM availability, inability to obtain spare parts, and increased sustainment costs over time. For example:

- **F/A-18:** Maintainers we spoke with explained that for over a decade they have been unsuccessful in procuring data rights for radio frequency cables from an OEM. This means only that vendor can make the part, and generally, repairs to that part are made on the OEM's schedule. Officials considered reverse engineering the part or contracting to stock spare parts but determined both options would be too costly. Maintainers, therefore, have resorted to cannibalizing grounded aircraft for the part. Cannibalization has several adverse impacts, including increasing maintenance costs and workload, and when overused, long-term adverse effects on aircraft availability.
- **F-35:** According to program officials and maintainers, the F-35 faces significant corrosion issues that maintainers cannot repair without contractor support due to a lack of technical data. In addition, according to maintainers, there are not enough contractors to respond to corrosion issues, which draws out repair timeframes. The program is attempting to develop organic sustainment capabilities by incrementally obtaining technical data to enable maintainers to do more repairs and improve timelines.[40]
- **Littoral Combat Ship:** Shipyard officials told us that maintainers are reliant on OEMs, who own the data rights for parts and repairs, which draws out repair timeframes. In one instance, maintainers leveraged a Master Ship Repair Agreement contractor—a private company with expertise in ship repair—to replace a broken hydraulic motor in a

[40]In 2023, we recommended that DOD reconsider the F-35 sustainment strategy including, among other things, assess the level of necessary technical data. GAO- F-35 *Aircraft: DOD and the Military Services Need to Reassess the Future Sustainment Strategy,* GAO-23-105341 (Washington, D.C.: Sept. 21, 2023). In 2025, we recommended that DOD assess whether F-35 maintenance personnel are granted appropriate authorities and access to technical data and information when deployed and make any changes necessary to ensure the success of the F-35 in future uncontested and contested environments. GAO, *Military Readiness: Implementing GAO's Recommendations Can Help DOD Address Persistent Challenges Across Air, Sea, Ground and Space Domains*, GAO-25-108104 (Washington, D.C.: Mar. 12, 2025).

crane on LCS.[41] The contractor would not complete the repair without the OEM present. Maintainers had to wait two and a half weeks for the OEM to be available to carry out the repair. According to shipyard officials, this was a quick turnaround and not all repairs happen that fast. Moreover, when maintainers contract with OEMs, they complete repairs on a first come, first served basis. Maintainers cannot redirect contract work from one ship to another to prioritize which sustainment activities get delayed. As a result, LCS had to wait for the OEM to complete the repairs and absorb the delay.

- **Stryker:** According to program officials, the program has tried unsuccessfully over time to acquire unlimited data rights for the base vehicle. As a result, in 2024, the Army established a technical support contract with the prime contractor for the base vehicle on a sole source basis at a cost of about $534 million over 5 years. Program officials also noted that for components for which it does have technical data, they have competitively awarded contracts for some aspects of sustainment services including, for example, new equipment training.
- ***Virginia*-class submarine:** Program officials told us that for ship repairs and maintenance they must work with OEMs or the prime contractor, who own the technical data rights for certain components. The OEM's schedule dictates the maintenance timeline, which can result in repair delays and affect operational readiness. Program officials also told us if OEMs do not deliver spare parts in a timely manner, maintainers must cannibalize parts from another submarine until replacements arrive.

The level of data rights and the level of technical data procured by programs are two of the main factors that contribute to vendor lock, but ambiguity over DOD's statutory rights is a factor too. Statute allows DOD to acquire unlimited rights to data necessary for operation, maintenance, installation, and training purposes.[42] However, the statute excludes detailed manufacturing or process data from this allowance. According to officials, this can result in disagreements between programs and contractors about what data DOD can request unlimited rights to as necessary for OMIT purposes under the statute. IP cadre officials explained that it is not uncommon for detailed manufacturing or process

[41]The Navy will grant a Master Ship Repair Agreement after certifying a ship repair firm's capability and capacity to perform all aspects of shipboard work. See U.S. Navy, Master Agreement for Repair and Alteration of Vessels: Master Ship Repair Agreement (MSRA) and Agreement for Boat Repair (ABR), Commander Navy Regional Maintenance Center Instruction 4280.1A, (Feb. 17, 2021); DFARS 217.7102.
[42]10 U.S.C. § 3771; DFARS 252.227-7013(a).

data to be considered necessary for OMIT purposes. For example, an F-35 official told us that the program may have data rights to broad technical data for their weapon systems, but depot-level maintainers may not have data rights that allow government personnel to make repairs without support from, or contracting with, OEMs and the prime contractor. Similarly, a maintainer for the LCS told us that for certain systems, such as the propulsion and diesel engines, the OEM has the rights to the spare parts, the specialty tooling, and the technical data. This prevents the program from developing organic sustainment capabilities and causes LCS to rely on the OEMs and prime contractors for maintenance. By clarifying how DOD and contractors should treat data that are both detailed manufacturing or process data and necessary for OMIT purposes, Congress could broaden the ability of government personnel to make repairs themselves or compete maintenance work to different vendors while balancing the considerations of the industrial base. This could, in turn, drive down sustainment costs and reduce schedule delays resulting from vendor lock.

Selected Programs Developed Ad Hoc Solutions for IP and Data Rights Shortfalls in Sustainment

The five selected programs have developed ad hoc solutions or workarounds to address data rights shortfalls, including delivery, despite programs being in sustainment. For example:

- **Specifically Negotiated License Rights:** F/A-18 program officials told us that when procuring the final aircraft, they purchased a full TDP for the program by leveraging SNLR. Under the SNLR, the program office and the prime contractor established three categories of technical data. In the first category, the government can use and distribute technical data to third parties without restriction. In the second category, the prime contractor has the first right to perform work instead of distributing technical data to third parties if work is for a new part or a critical safety item. If work is not for a major new line or critical safety item or the contractor refuses to perform work, the government can distribute technical data to third parties to perform work. The third category is comprised of 20 system specifications that can be requested from the prime and viewed by a small number of program officials, if, and when, a need arises. Officials told us the prime is currently removing sensitive information from these 20 specifications so that the program can use them as second category data.
- **Source selection criteria:** According to Stryker program officials, they obtained additional technical data and data rights by using data rights as a source selection evaluation factor for the MCWS integration contract. Under this model, the government rated offerors

that were willing to provide greater data rights more favorably in the evaluation. As a result, Stryker obtained a comprehensive TDP for the component and its integration with the base vehicle. The program still relies on the sole source contract mentioned earlier to sustain the base vehicle.

- **Indefinite-delivery indefinite-quantity contract for long-lead materials[43]:** *Virginia*-class submarine program officials told us they planned to stock certain long-lead materials for which the program did not have data rights to competitively procure or organically complete the repair. This would enable the program to keep more spares on hand, reducing maintenance delays and reducing the cannibalization of parts.
- **Direct support contracts:** LCS maintainers told us that the program office led an effort to contract with sub-tier contractors so the program can work directly with OEMs to stock component parts or conduct sustainment on specific systems. LCS maintainers working directly with OEMs has reduced maintenance delays according to officials we spoke with.
- **Data storage and access agreements:** According to an F-35 program official, program personnel must use contractor-owned systems to access the most up to date technical data to support sustainment and maintenance activities.

DOD, military department, and program officials generally agreed with each other that solutions to IP and data rights shortfalls are limited once the program ceases production and fully enters sustainment. DOD, military department, and program officials also identified other potential solutions to data rights shortfalls, including reverse engineering, additive manufacturing, or deferred ordering provisions, among others.[44] However, these options are generally less effective and efficient than contracting for data rights and IP early during acquisition and procurement.

[43]Indefinite-delivery indefinite-quantity contracts provide for an indefinite quantity, within stated limits, of supplies or services during a fixed period. The Government places orders for individual requirements. FAR 16.504; DFARS 216.504.

[44]DFARS 252.227-7027 allows DOD to order any technical data or computer software generated in the performance of the contract for up to 3 years after the acceptance of all items under the contract or contract termination.

DOD Does Not Consistently Collect Lessons Learned on IP Challenges in Sustainment

There is no comprehensive process by which lessons learned on IP and data rights are collected from programs in sustainment and shared either at the military department-level, or across DOD. We found that DOD began collecting lessons learned in 2021 to address vendor lock and reliance on sole source suppliers through the IP Cadre's Section 801 pilot program, but the pilot has since ended.[45] This initiative assessed IP evaluation techniques to better understand, among other things, the assessment and management of IP during acquisition and sustainment. The IP Cadre, under the pilot, published annual reports highlighting best practices and lessons learned for IP and data rights procurement. For example, one of the lessons learned case studies in the fiscal year 2022 annual report was the Stryker program's efforts to successfully procure technical data rights for the MCWS integration.

However, DOD stopped data collection and annual reporting in fiscal year 2023 with the end of the pilot. The pilot showed that weapon system programs want specific case studies and examples of IP strategies to avoid vendor lock, among other challenges with data rights. The pilot recommended that the OSD IP Cadre build a repository of IP strategies and case studies programs that overcame vendor lock and expanded organic sustainment to help others do the same.

DOD's IP cadre has made efforts since the end of the pilot program to develop guidance and share lessons learned, but these efforts have limitations. DOD's recently published IP guidebook acknowledges that data rights issues, such as vendor lock, can occur during sustainment because of a poor IP strategy during the initial acquisition phase. However, the guidebook does not specifically address how programs can mitigate vendor lock during sustainment. Moreover, the Product Support Toolkit, which serves as a training guide and reference with lessons for program officials, also does not provide tailored information for how weapon systems in sustainment may use workarounds to procure data rights to allow for organic sustainment.

[45]The National Defense Authorization Act for Fiscal Year 2017 required that the DOD establish a government-industry advisory panel for the purpose of reviewing rights in technical data and the validation of proprietary data, referred to as the 813 Panel. Pub. L. No. 114-92, § 813. The 813 Panel made several recommendations including the establishment of a pilot program for IP evaluation in acquisition planning and source selection. 2018 Report Government-Industry Advisory Panel on Technical Data Rights (Nov. 13, 2018). Subsequently, DOD was directed to establish a pilot program, which began in 2021 and published annual reports through to 2023. Pub. L. No. 116-92, § 801.

Some program officials also told us that they informally share lessons learned on acquiring data rights during sustainment or workarounds to address data rights shortfalls with other program offices. For example, F/A-18 program officials told us that based on a court ruling about technical data ownership for the F-15 program, they incorporated contract language and markings that have simplified the technical data delivery process.[46] Both programs experienced many of the same challenges and issues since they have a common OEM. In addition, according to military department IP Cadre officials, they are working to improve cross-service collaboration on IP in general.

DODI 5010.44 states that the Director of the IP Cadre will identify and distribute best practices. Additionally, members of the IP Cadre will facilitate coordination and consistency across DOD in strategies for determining IP deliverables and IP rights necessary for operation, maintenance, modernization, and sustainment.[47] The DOD IP pilot report made a similar recommendation about sharing lessons learned. However, the OSD IP Cadre has yet to establish an ongoing formal process to collect and share lessons learned regarding how programs in sustainment procure technical data or data rights, or otherwise address data rights shortfalls. Collecting lessons learned from programs in sustainment could better inform the acquisition and sustainment planning of programs earlier in the acquisition process. It would also allow other programs in sustainment to leverage existing solutions or approaches to their own IP and data rights challenges. By sharing these lessons, programs may be able to shorten timeframes for performing maintenance and reduce sustainment costs.

Conclusions

Gaps in technical data and data rights for DOD weapon systems have impeded efforts to conduct maintenance on these systems and can lead to additional costs and schedule delays. DOD's existing guidance doesn't fully address the IP planning needs of programs in sustainment which may hinder programs' abilities to identify and maximize opportunities to obtain IP and data rights later in the programs' life cycles. DOD is also expected to publish new guidance on the data deliverable review process. However, without robust tools to enable this process, programs may struggle to fully implement such guidance. Some organizations within DOD have undertaken several concurrent efforts to develop tools to streamline data rights reviews. The IP Cadre has an opportunity to formally assess the tools being developed to prevent further

[46]See The Boeing Co. v. Secretary of the Air Force, 983 F. 3d 1321 (Fed. Cir. 2020).
[47]DOD Instruction 5010.44.

fragmentation. Furthermore, these tools may enable DOD to leverage common data deliverables across systems. In addition, clarifying how DOD and contractors should treat detailed manufacturing or process data necessary for OMIT purposes could broaden DOD's ability to conduct organic maintenance. The IP Cadre can also improve programs' reliance on sole source contracts, due to a lack of data rights, by collecting and distributing lessons learned from programs in sustainment to better leverage opportunities to develop solutions and workarounds. By refining key policies and guidance, and leveraging prior knowledge, DOD and Congress can make improvements in acquiring and managing data rights that lower costs and reduce delays for weapon programs in sustainment.

Matter for Congressional Consideration

Congress should consider clarifying how DOD and contractors should treat detailed manufacturing or process data that is necessary for OMIT purposes. (Matter for Consideration 1)

Recommendations for Executive Action

We are making the following three recommendations to DOD:

The Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD A&S) should ensure the Director of the IP Cadre updates the IP guidebook or produces guidance to address the courses of action available to programs in sustainment to obtain IP and data rights. (Recommendation 1)

OUSD A&S should ensure the Director of the IP Cadre formally assesses available tools to assist programs with the review of data deliverables, in coordination with officials responsible for the tools' development. (Recommendation 2)

OUSD A&S should ensure the Director of the IP Cadre establishes a process to collect and distribute IP and data rights lessons learned from programs in sustainment. (Recommendation 3)

Agency Comments and Our Evaluation

We provided a draft of this report to DOD for review and comment. In its written comments, reproduced in appendix II, DOD concurred with our recommendations and identified steps it would take to address them. DOD also provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the appropriate congressional committees; the Secretary of Defense; and the Under Secretary of

Defense for Acquisition and Sustainment. In addition, the report is available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at OakleyS@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Staff members making key contributions to this report are listed in appendix III.

//SIGNED//

Shelby S. Oakley
Director, Contracting and National Security Acquisitions

List of Addressees

The Honorable Roger F. Wicker
Chairman
The Honorable Jack Reed
Ranking Member
Committee on Armed Services
United States Senate

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

Appendix I: Statutory Changes on Intellectual Property and Data Rights for Major Weapon Systems

Title 10 of the United States Code (U.S.C.) governs the form, function, duties, and responsibilities of the U.S. Armed Forces and contains various provisions relevant to DOD IP. Table 6 below provides an overview of key Title 10 statutory provisions that relate to DOD intellectual property, including significant changes.

Table 5: Statutory Developments Regarding Department of Defense (DOD) Intellectual Property (IP) for Maintenance and Sustainment

Statute	Title	Legislative History
10 U.S.C. § 3771	Rights in technical data: regulations	10 U.S.C. § 3771 specifies when the government may have rights to use technical data and requires the Secretary of Defense to develop implementing regulations. This section also creates exceptions to restrictions on technical data for form, fit and function and operation, maintenance, installation, or training data. Formerly § 2320(a), provisions of this section were first enacted in 1984 by Pub. L. No. 95-525, § 1216 (1984), and have been amended and updated clarifying definitions of technical data, the types of rights the government can assert, and the procedures for asserting data rights. In 2021, § 2320(a) was updated and renumbered at 10 U.S.C. § 3771. Pub. L. No. 116-283, § 1833(a) (2021).
10 U.S.C. § 3772	Rights in technical data: provisions required in contracts	10 U.S.C. § 3772 is derived from the text of 10 U.S.C. § 2320(b), and traces back to 1984 when provisions of this section were first enacted by Pub. L. No. 95-525, § 1216 (1984). The statute requires certain contracts for supplies or services contain provisions regarding technical data. The statute has been amended since 1984 to refine and clarify definitions and streamline the process for the government to asserts rights in technical data, among other things. In 2021, § 2320(b) was updated and renumbered at 10 U.S.C. § 3772. Pub. L. No. 116-283, § 1833(a) (2021).
10 U.S.C. § 3774	Major weapon systems and subsystems: long-term technical data needs	10 U.S.C. § 3774 directs program managers to assess the long-term technical data needs of the major weapons systems and subsystems and develop acquisition strategies that provide for technical data rights needed for sustainment over the systems and subsystems life cycle. Contained within § 3774(c) is a preference for specially negotiated licenses, directing that the Secretary of Defense, to the maximum extent practicable, negotiate and enter a contract with a contractor for a specially negotiated license for technical data to support the product support strategy. The text of § 3774 was contained 10 U.S.C. § 2320, which was amended in 2017 to add subsection (f) which added the provision regarding a preference for specially negotiated licenses. Pub. L. No. 115-91, § 2439 (2017). In 2021, § 2320(b) was updated and renumbered at 10 U.S.C. § 3772. Pub. L. No. 116-283, § 1833(a) (2021).
10 U.S.C. § 3781	Technical data: contractor justification for restrictions; review of restrictions.	10 U.S.C. § 3781 requires a contractor to furnish to the contracting officer a written justification for any use or release restriction asserted by the contractor regarding the delivery of technical data. The text of § 3781 was contained in 10 U.S.C. § 2321(a)-(c), prior to the update and reorganization of certain sections of Title 10. Pub. L. No. 116-283, § 1833 (h) (2021). The text of Section 2321 was based on Pub. L. No. 100-26, § 7(a)(5)(A) (1987).

Statute	Title	Legislative History
10 U.S.C. § 3782	Technical data: challenges to contractor restrictions	10 U.S.C. § 3782 allows the Secretary of Defense to challenge a use or release restriction asserted by a contractor or subcontractor and establishes a process for that challenge. The text of § 3782 was contained in 10 U.S.C. § 2321(d), prior to the update and reorganization of certain sections of Title 10. Section 2321(d) was updated and renumbered at 10 U.S.C. § 3782. Pub. L. No. 116-283, § 1833(g), (i) (2021). The text of Section 2321 was based on Publ. L. No. 100-26, § 7(a)(5)(A) (1987).
10 U.S.C. § 3783	Technical data: time for contractors to submit justifications	10 U.S.C. § 3783 provides contractors additional time to submit justifications for asserting a use or release restriction, as well as provisions for multiple challenges. The text of § 3783 was contained in 10 U.S.C. § 2321(e), prior to the update and reorganization of certain sections of Title 10. Section 2321(e) was updated and renumbered at 10 U.S.C. § 3782. Pub. L. No. 116-283, § 1833(j) (2021). The text of Section 2321(e) was based on Publ. L. No. 98-525, § 1216(a).
10 U.S.C. § 3791	Management of intellectual property matters within the Department of Defense	10 U.S.C. § 3791 directs the Secretary of Defense, through the Under Secretary of Defense for Acquisition and Sustainment, to develop a policy on the acquisition or licensing of intellectual property. This section also establishes the Cadre of Intellectual Property Experts (IP Cadre) and provides for guidelines and resources for the IP Cadre as well as other guidelines and resources. The provisions of subsection (a) of § 3791 were contained 10 U.S.C. § 2322(a), prior to the update and reorganization of certain sections of Title 10. Section 2322(a) was updated and renumbered at 10 U.S.C. § 3791(a), with additional provisions added. Pub. L. No. 116-283, § 1833 (2021). This section was amended by Pub. L. 117–81, § 1701(a)(2), setting out in a note preceding section 3001 with the delayed implementation date under Pub. L. No. 116-283, § 1801(d) (2021). In 2023, this section was again amended to add the Section 808 Pilot Program for the Use of Innovative Intellectual Property Strategies. Pub. L. No. 118-31, § 808 (2023).
10 U.S.C. § 1707	Cadre of intellectual property experts	10 U.S.C. § 1707 provides for the leadership structure, duties, responsibilities, and administration of the Cadre of Intellectual Property Experts (IP Cadre). The text of section 1707 was contained in § 2322(b), prior to the update and reorganization of certain sections of Title 10. Pub. L. No. 116-283, § 1877(a) (2021). Section 2322(b) added by Pub. L. 115–91, §802(a)-(b) (2017). In 2019, the Pilot Program on Intellectual Property Evaluation for Acquisition Programs was added by Pub. L. 116–92, § 801 (2019).
10 U.S.C. § 4236	Negotiation of price for technical data before development, production, or sustainment of major weapon systems	10 U.S.C. § 4236 directs the Secretary of Defense to ensure, to the maximum extent practicable, that the Department of Defense, before selecting a contractor for the engineering and manufacturing development of a major weapon system, production of a major weapon system, or sustainment of a major weapon system, negotiates a price for technical data to be delivered under a contract for such development, production, or sustainment. The text of § 4236 was contained in § 2439, prior to the update and reorganization of certain section of Title 10. Pub. L. 116–283, § 1847(c)(3) (2019). Section 2439 was added by Pub. L. No. 115-91, § 835(a)(3) (2017).

Source: GAO Analysis of Statutory Information. I GAO-25-107468

Appendix II: Comments from the Department of Defense

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

ACQUISITION
AND SUSTAINMENT

Ms. Shelby Oakley
Director, Contracting and National Security Acquisitions
U.S. Government Accountability Office
441 G Street, NW
Washington DC 20548

Dear Ms. Oakley,

This is the DoD response to the General Accountability Office (GAO) Draft Report GAO-25-107468, "WEAPON SYSTEM SUSTAINMENT: DoD Can Improve Planning and Management of Data Rights," dated July 23, 2025 (GAO Code 107468). The Department acknowledges receipt of the draft report, and we thank you for the opportunity to review and provide technical comments with our response to the recommendations.

Attached is DoD's response to the subject report that reflects an overall concurrence with the report and recommendations. My point of contact is Joanne C. Herring, Acting Director, Defense Pricing, Contracting, and Acquisition Policy - Intellectual Property Cadre, email: joanne.c.herring2.civ@mail.mil or phone (571) 309-1238.

Sincerely,

TENAGLIA.JOHN.M.1154945926 Digitally signed by TENAGLIA.JOHN.M.1154945926 Date: 2025.09.11 11:48:44 -04'00'

John M. Tenaglia
Principal Director,
Defense Pricing, Contracting, and
Acquisition Policy

Enclosure:
As stated

GAO DRAFT REPORT DATED JULY 23, 2025
GAO-25-107468 (GAO CODE 107468)

"WEAPON SYSTEM SUSTAINMENT: DOD CAN IMPROVE PLANNING AND MANAGEMENT OF DATA RIGHTS"

DEPARTMENT OF DEFENSE COMMENTS
TO THE GAO RECOMMENDATIONS

RECOMMENDATION 1: The GAO recommends that the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD A&S) should ensure the Director of the IP Cadre updates the Intellectual Property (IP) guidebook or produces guidance to account for the IP planning needs of programs in sustainment.

DoD RESPONSE: The Department concurs with Recommendation 1. The Department will ensure the Director of the IP Cadre provides the appropriate guidance on courses of action to obtain IP to programs in sustainment that do not have sufficient data rights to adequately meet sustainment requirements. The Department has extensive guidance on IP planning for sustainment, such as the IP for Product Support Toolkit, and has many initiatives to ensure that guidance is being propagated through multiple training avenues. The Department plans to provide this guidance to the acquisition workforce by the third quarter fiscal year 2026.

RECOMMENDATION 2: The GAO recommends that the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD A&S) should ensure the Director of the IP Cadre formally assesses available tools to assist programs with the review of data deliverables.

DoD RESPONSE: The Department concurs with Recommendation 2. The Department recommends that this recommendation be updated to include coordination with the military Departments, Chief Information Officer (CIO), and the Chief Data and Artificial Intelligence Officer (CDAO). The Director of the IP Cadre does not independently have the ability to conduct an assessment of tools developed by other organizations, some of which may not still be supported. The OSD IP Cadre will coordinate and collaborate with the necessary organizations to assess available tools designed to assist programs with the review of data deliverables. The Department will conduct an initial data call to identify available tools for assessment by second quarter fiscal year 2026.

RECOMMENDATION 3: The GAO recommends that the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD A&S) should ensure the Director of the IP Cadre establishes a process to collect and distribute IP and data rights lessons learned from programs in sustainment.

DoD RESPONSE: The Department concurs with Recommendation 3. The Department will coordinate with the Federated IP Cadre, which includes the Military Departments and 4th Estate agencies with acquisition authority, to establish a recurring process to collect and distribute IP

lessons learned from acquisition community. This process will be established and operational by the fourth quarter fiscal year 2026.

Appendix III: GAO Contact and Staff Acknowledgements

GAO Contact

Shelby S. Oakley, oakleys@gao.gov

Staff Acknowledgments

In addition to the contact named above, the following staff members made key contributions to this report: Julie A. Clark, Assistant Director; Sarah Tempel, Analyst-in-Charge; Pete Anderson; John Bumgarner; Lorraine Ettaro; Gary George; Riley Knight; Christine Pecora; Lindsey Saul; Ian Toller-Clark.

Related GAO Products

Weapon Systems Acquisition: DOD Needs Better Planning to Attain Benefits of Modular Open Systems. GAO-25-106931. Washington, D.C.: Jan. 22, 2025.

F-35 Aircraft: DOD and the Military Services Need to Reassess the Future Sustainment Strategy. GAO-23-105341. Washington, D.C.: Sept. 21, 2023.

Weapon System Sustainment: Aircraft Mission Capable Goals Were Generally Not Met and Sustainment Costs Varied by Aircraft. GAO-23-106217. Washington, D.C.: Nov. 10, 2022.

Littoral Combat Ship: Actions Needed to Address Significant Operational Challenges and Implement Planned Sustainment Approach. GAO-22-105387. Washington, D.C.: Feb. 24, 2022.

Defense Acquisitions: DOD Should Take Additional Actions to Improve How It Approaches Intellectual Property. GAO-22-104752. Washington, D.C.: Nov. 30, 2021.

F-35 Sustainment: DOD Needs to Cut Billions in Estimated Costs to Achieve Affordability. GAO-21-439. Washington, D.C.: July 7, 2021.

F-35 Joint Strike Fighter: DOD Needs to Update Modernization Schedule and Improve Data on Software Development. GAO-21-226. Washington, D.C.: Mar. 18, 2021.

Navy Shipbuilding: Increasing Focus on Sustainment Early in the Acquisition Process Could Save Billions. GAO-20-2. Washington, D.C.: Mar. 24, 2020.

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

Weapons Acquisition: DOD Should Strengthen Policies for Assessing Technical Data Needs to Support Weapon Systems. GAO-06-839. Washington, D.C.: July 14, 2006.