NPS-AM-26-042

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Case Study on a Successful Technical Data Package Procurement and Implementation for F/A-18 E/F Series Aircraft

June 2025

LCDR Brendan S. Kahle, USN
LCDR Heather N. Kerber, USN
LCDR Joshua M. Crosby, USN

Thesis Advisors: Kelley Poree, Lecturer
Dennis L. Lester, Associate Provost

Department of Defense Management

Naval Postgraduate School

Prepared for the Naval Postgraduate School, Monterey, CA 93943.

ACQUISITION RESEARCH PROGRAM
DEPARTMENT OF DEFENSE MANAGEMENT
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The research presented in this report was supported by the Acquisition Research Program of the Department of Defense Management at the Naval Postgraduate School.

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ABSTRACT

This explanatory case study examines the strategic utilization of Technical Data Packages (TDPs) to mitigate obsolescence in the Department of Defense (DoD) supply chain, focusing specifically on the Navy's F/A-18 E/F fighter jet. Recognizing the criticality of securing intellectual property rights for sustained weapon system readiness, this study investigates NAVSUP PMA-265's acquisition of F/A-18 E/F TDPs from Boeing. Furthermore, it analyzes the Navy's current practices in leveraging TDPs for uninterrupted F/A-18 E/F sustainment. Additionally, this study explores the challenges and requirements associated with obtaining TDPs from independent DoD contractors. Through a comparative analysis of the FAA's successful IP procurement strategies and a detailed case study of the F/A-18 E/F program, this research identifies best practices and proposes actionable recommendations for optimizing TDP acquisition and utilization within the Navy. The findings advocate enhanced acquisition of technical data through Defense Federal Acquisition Regulation Supplement contract clauses, early DoD investment in research and development, and utilizing special licensing agreements as a secondary method of procurement, to promote long-term cost savings and supply chain resilience within the F/A-18 E/F program and beyond.

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LIST OF ACRONYMS AND ABBREVIATIONS

DoD	Department of Defense
DoDIG	Department of Defense Inspector General
FAA	Federal Aviation Administration
GFI	Government Furnished Information
GPR	Government Purpose Rights
IDE	Integrated Data Environment
IP	Intellectual Property
MRO	Maintenance, Repair and Overhaul
PMA	P Material A
SLA	Special License Agreement
SOP	Standard Operating Procedures
TDP	Technical Data Package
USN	United States Navy

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I. INTRODUCTION

A. BACKGROUND

The U.S. Navy (USN) has historically faced significant challenges in securing technical data rights for its weapon systems, reflecting broader issues within the Department of Defense (DoD). Traditionally, acquiring data rights within the Navy has often been characterized by limited access to critical technical information. This limited access has led to several adverse outcomes, including a significant impact on life cycle sustainment and increased risks of obsolescence for key components in maintaining fleet readiness.

The DoD's reliance on sole-source contracts for critical systems like the F/A-18 E/F exacerbates issues arising from limited data rights, particularly when suppliers phase out components or exit the market. This dependency has led to significant backorders of essential spare parts, compromising fleet readiness (Department of Defense Inspector General [DoDIG], 2020). Without proper access to technical data, the USN cannot procure replacement parts, resulting in supply chain gaps that affect life cycle sustainment and fleet squadron readiness.

In contrast to how the DoD operates with their contractual partners, the Federal Aviation Administration (FAA) mandates access to technical data rights from manufacturers, providing a framework that enhances visibility of aircraft components, supports maintenance needs, and reinforces accountability (Federal Aviation Administration [FAA], 2013). The FAA enforces data retention requirements, ensuring critical technical data remains accessible for auditing and verification throughout the life cycle of certified products.

To minimize risks of obsolescence and supply disruptions in support of the F/A-18 E/F weapon system, PMA-265 recently acquired Boeing's Technical Data Package (TDP) (PMA, 2025) The Navy must leverage the lessons learned from PMA-265 and address technical data obstacles to achieve this goal. The Department of Defense Inspector General (DoDIG) report from 2020 suggests implementing a proactive

procurement plan to target obsolescence and ensure parts availability. This plan will enhance the Navy's capabilities to develop strategies for obtaining or accessing technical data, especially where contractors hold exclusive rights. These strategies are crucial for sustaining repair capacity and promoting the longevity of systems like the F/A-18 E/F.

B. DOD STANDARD OPERATING PROCEDURES

The Standard Operating Procedures (SOP) for the acquisition and management of technical data rights within the DoD are critical for ensuring operational readiness and life cycle sustainment of weapons systems. This section outlines the SOPs that govern the procurement, utilization, and protection of technical data rights, with a focus on the F/A-18 E/F program.

1. Procurement

The objective of data rights acquisition is to establish a structured approach for gaining technical data rights from contractors and ensuring compliance with statutory and regulatory requirements. The procedure begins with an initial assessment, which involves a thorough review of the technical data requirements for the weapon system, identifying the specific data rights needed (e.g., Unlimited Rights, Government Purpose Rights, Limited Rights), and the contractor's proprietary interests and potential restrictions on data access. The contractual framework includes drafting contract clauses that specify the data rights to be acquired, including provisions for deferred ordering and financial withholds to ensure compliance, and negotiating terms with the contractor to balance government needs with proprietary protections. Approval of the contract by relevant authorities (e.g., program management office, legal counsel) involves preparing detailed documentation of the data rights acquisition plan and ensuring all contractual agreements are signed and properly recorded.

2. Utilization

The objective of data utilization is to ensure authorized personnel have access to technical data while maintaining security and compliance with licensing agreements. Utilizing this data involves three levels of access control, Category 1: Minimal Impact,

Category 2: Moderate Impact, Category 3: Severe Impact. It also involves assigning access levels to personnel based on their roles and responsibilities. In emergency situations such as armed conflict or cybersecurity incidents, access protocols are different and involve maintaining emergency hard drives with critical data at designated custodial sites and ensuring proper authorization and logging of all emergency access instances. Third-party licensing involves facilitating third-party access through Pro Forma licenses, monitoring compliance with licensing terms and conditions, and terminating access promptly when no longer required. (PMA, 2025)

3. Protection

The objective of data protection and security is to safeguard technical data against unauthorized access, misuse, and breaches. The procedure includes ensuring all technical data is stored securely, with regular backups and legacy data retrieval capabilities, maintaining proper electronic storage systems with robust security measures, and regularly auditing data access and usage to ensure compliance with licensing agreements. Any breaches or violations must be reported to the appropriate authorities immediately, and corrective actions must be implemented to address any identified security gaps. Training and awareness involve conducting training sessions for personnel on data rights management and security protocols, raising awareness about the importance of protecting proprietary data, and providing resources and support for ongoing education and compliance.

C. FAA FRAMEWORK

The FAA has a comprehensive framework for requiring technical data from aircraft manufacturers to ensure safety and regulatory compliance (FAA, 2025). This framework is extensive and specifically designed to require aircraft manufacturers to submit and maintain accurate and up-to-date technical information. It outlines not only what data must be submitted, but also the frequency, enforcement mechanisms, and protections surrounding that data. For manufacturers like Boeing, understanding and complying with these requirements is fundamental to maintaining certification and supporting the continued airworthiness of their fleets.

Technical data submission forms the backbone of the FAA's ability to certify aircraft and ensure they meet the agency's stringent safety standards. This data enables the FAA to evaluate whether aircraft designs comply with regulatory requirements, monitor ongoing performance and airworthiness, and respond to potential safety concerns as they emerge. By mandating comprehensive technical data, the FAA exercises oversight over the full life cycle of an aircraft—from design to production and maintenance—ensuring that industry best practices are consistently followed.

1. Submission Requirements

Aircraft manufacturers are required to submit a full technical data package as part of the FAA certification process. These packages typically include engineering design data, test results, and documentation demonstrating compliance with applicable regulations. This data is essential not only for initial certification but also for ongoing regulatory oversight. The primary legal foundation for these requirements is found in Title 14 of the Code of Federal Regulations (14 CFR), particularly Parts 21 (Certification Procedures for Products and Parts), 39 (Airworthiness Directives), and 145 (Repair Stations). The FAA also provides supplemental guidance through Advisory Circulars, such as AC 20–62E, which clarifies expectations for quality assurance, traceability, and the use of aeronautical parts and materials.

2. Frequency and Duration

Technical data is first submitted during the type and production certification phases, when a manufacturer seeks FAA approval for a new aircraft design or production process. Additionally, manufacturers are required to submit updated data on an ongoing basis, particularly when modifications are made to the aircraft's design, components, or manufacturing methods. Furthermore, if the FAA identifies safety concerns through airworthiness directives, manufacturers must respond with relevant data to support corrective action. The retention and periodic submission of technical data are ongoing throughout the aircraft's operational life.

3. Enforcement

To ensure compliance, the FAA conducts regular inspections and audits of manufacturers' facilities and processes. Aviation safety inspectors are tasked with verifying that the technical data submitted is complete, accurate, and up to date. Enforcement tools include both administrative and legal measures, ranging from civil penalties and fines to suspension or revocation of type and production certificates. This enforcement framework is codified in FAA orders and regulatory procedures that outline the consequences of non-compliance and reinforce the importance of maintaining high safety and documentation standards.

4. Protection

Given the proprietary nature of much of the technical data submitted to the FAA, the agency has protocols in place to safeguard sensitive information. Manufacturers' intellectual property is protected through confidentiality agreements and secure data-handling practices. This protection is particularly important for preserving competitive advantage and encouraging open collaboration between regulators and manufacturers. Additionally, the FAA keeps all historical records, including design data for legacy and vintage aircraft, to ensure long-term traceability and support future research or certification needs.

D. PMA-265'S IMPLEMENTATION OF SOPS

PMA-265 recently acquired the TDP from Boeing for the FA-18E/F weapon system by diligently implementing the DoD's SOPs. This section outlines the key steps and strategies employed by PMA-265 to secure the TDPs from Boeing.

To obtain a complete product-level TDP, PMA-265 negotiated a Special License Agreement (SLA) with Boeing, granting access to Boeing's process, material, and company specifications for the life of the program. Generally, the government holds Government Purpose Rights (GPR) or Unlimited Rights in data developed with government funding, while limited rights are more common for data from second and third-tier suppliers. For PMA-265 to ensure secure and controlled access, they established

a government-controlled Integrated Data Environment (IDE) to store the TDP. Additionally, emergency hard drives with specifications were deployed with squadrons to maintain readiness.

The acquisition contracts included provisions for withholding payments if Boeing failed to deliver the complete TDP. To ensure compliance and completeness, the government retained the right to remove nonconforming markings on data. Negotiating intellectual property (IP) rights for Maintenance, Repair, and Overhaul (MRO) activities was particularly challenging, especially with second and third-tier suppliers. PMA-265 leveraged production funds and congressional support to secure the necessary data rights. As part of PMA-265's strategy, weekly meetings with Navy general counsel and congressional testimonies were conducted.

Third-party contractors can be licensed to use the specifications through Government Furnished Information (GFI) packages. The TDP portions are delivered in batches and audited to ensure completeness and accuracy. Measures were taken to secure IP against cybersecurity vulnerabilities and to ensure long-term access to software updates and system modifications. The TDP is stored in a government-owned IDE, with processes on hard drives updated annually to ensure continued access in case of corporate changes.

Securing IP rights allowed the Navy to maintain, modify, and upgrade the FA-18E/F fleet without relying solely on Boeing.

IP rights not only allow the USN to issue contacts with vendors for replacement parts as previously mentioned but also facilitates the implementation of additive manufacturing (3D printing) for spare parts. Key lessons learned include the importance of securing IP rights for long-term sustainment and life cycle cost control, balancing the DoD's need for data with contractors' proprietary interests, and ensuring that future sustainment acquisitions include robust contractual strategies to avoid IP challenges and address technological obsolescence.

E. PURPOSE OF RESEARCH

The DoD faces persistent challenges in negotiating and securing technical data rights from major weapon system manufacturers, despite contractual obligations. These data rights are crucial for life cycle sustainment, competition, and operational readiness. For life cycle sustainment, data rights allow the DoD to perform repairs, upgrades, and modifications throughout the system's life cycle without relying solely on the original equipment manufacturer (OEM). This independence helps reduce costs and avoid delays. In terms of competition, having technical data rights enables the DoD to foster competition among suppliers, leading to better pricing, improved service quality, and innovation. For operational readiness, access to technical data ensures that the DoD can quickly address any issues with weapon systems, maintaining the effectiveness of military operations.

However, there has been limited comprehensive analysis of successful strategies or precedents for obtaining these rights in major defense acquisition programs. This lack of systematic study has hindered the DoD's ability to institutionalize best practices and effectively assert its legal entitlements in negotiations with OEMs.

This research evaluates the efficacy of the SLA as a mechanism for securing technical data rights and will seek to identify best practices that can be applied to future contract actions. The goal is to ensure consistent and enforceable access to such rights across DoD acquisition programs. Additionally, it should enable the USN to issue contracts with vendors for replacement parts, as previously mentioned. To conduct this research, we will use qualitative analysis through case study methodology, providing a comprehensive evaluation of the SLA's effectiveness.

F. RESEARCH QUESTIONS

1. How did the Navy optimize its investment in research and development (R&D) to successfully obtain TDP for the F/A-18 E/F?
2. What are the statutory, contractual, and regulatory requirements for acquiring TDPs from DoD contractors, and how are these currently being addressed through PMA-265's acquisition practices for the F/A-18 E/F?

3. How can procurement strategies be aligned with Defense Federal Acquisition Regulation Supplement (DFARS) to support TDP acquisition while balancing contractor intellectual property protections with government sustainment and life cycle needs?

4. Can the Navy leverage the FAA's technical data rights framework as a model for acquiring TDPs, and what recommendations can be made to improve and streamline the Navy's TDP acquisition strategy across other major weapon systems?

G. BENEFITS OF RESEARCH

The F/A-18 E/F has been plagued with sustainment issues due to it being a legacy aircraft, decreased production of components, and the need to maintain the same operational requirements. Access to technical data is essential to address these challenges. This explanatory case study evaluates PMA-265's successful acquisition of the F/A-18 E/F TDP and examines how the USN can leverage this case study to improve the training and education of contracting officers early in the weapon system life cycle.

PMA-265 was driven to secure the TDP due to the increasing difficulties in sustaining the fleet independently, evolving assessments of data requirements, and the need to address improper marking concerns and regulatory gaps. This study further analyzes institutional barriers within current Navy policies and explores how modifications to contractual frameworks could enhance access to technical data rights. It underscores that securing technical data rights at the inception of a program provides significant long-term benefits to life cycle sustainment.

Current instructions provide specific regulations for data rights, but the USN often fails to fully leverage contract clauses and verbiage to obtain the data rights it is entitled to. This research demonstrates that the USN has a legal basis to secure technical data rights across many of its weapon systems, using the F/A-18E/F as a primary case study. It provides a practical model and evaluates alternative frameworks that optimize access to technical data, ultimately strengthening the government's rights.

The research supports the training and education of contracting officers by presenting a real-world success case, offering insights into how early action during contract formation improves outcomes. It identifies common barriers to securing technical data rights and proposes methods to recognize and address them early in the acquisition process.

The benefits include long-term cost savings, improved life cycle sustainment, and enhanced fleet readiness by enabling the USN to organically produce components or utilize multiple contractors to meet repair and sustainment requirements. The study also evaluates current DoD acquisition practices and recommends changes that prioritize early investment in R&D to deliver greater long-term value.

Furthermore, the study promotes greater accountability, traceability, and transparency between the DoD and its contractors. It highlights how the failure to obtain technical data restricts competition and degrades fleet material readiness, particularly as it relates to the obsolescence of critical repair parts. By analyzing the DoD's current challenges and comparing them to the FAA's practice of requiring full technical data rights for all aviation platforms, the research offers actionable strategies to strengthen DoD procurement and sustainment outcomes.

H. LIMITATIONS OF THE STUDY

This study is subject to certain limitations that must be acknowledged. Chief among them is the potential for bias, as the research relies primarily on data collected from PMA-265—the organization that successfully asserted data rights from Boeing. Given that the perspectives captured originate from the group responsible for achieving this outcome, there is a risk of self-reporting bias, which may affect the objectivity of the findings. Additionally, the case study is limited in scope, as it is based on a single instance of successful data rights acquisition for a major weapon system. Since no other comparable cases currently exist within the DoD, the ability to generalize findings or establish broader patterns across acquisition programs is inherently constrained.

I. ORGANIZATION OF REPORT

This capstone is composed of six chapters. Chapter I, Introduction, will provide essential background information on data rights laws, regulations, and FAA procedures, setting the stage for the subsequent analysis. Chapter II, Literature Review, reviews scholarly works that are directly related to the case study, offering a comprehensive overview of existing research and theoretical frameworks. Chapter III, Methodology, outlines the methods used to conduct the case study, detailing the research design, data collection techniques, and identifying any limitations encountered during the study. Chapter IV, Analytical Discussion, presents analysis of the key findings from that examination. Chapter V, Conclusion/Recommendation, summarizes the key findings of the study and offers recommendations for future research.

II. LITERATURE REVIEW

In the evolving landscape of defense acquisition, technical data rights have emerged as a critical factor influencing the DoD'S ability to sustain, modernize, and competitively reprocure major weapon systems. Once viewed primarily as a legal or contractual concern, data rights now represent a strategic imperative—particularly as the complexity of military platforms increases and sustainment costs rise. At the heart of this issue lies the government's need to access, use, and share technical data developed under contract, which directly impacts its capacity to maintain operational readiness, reduce life cycle costs, and ensure long-term autonomy from OEMs. This literature review explores the multifaceted nature of technical data rights, examining their definitions, regulatory frameworks, historical significance, and the challenges they pose to both DoD and defense contractors.

From the industry perspective, technical data and intellectual property are considered vital assets—often referred to as a company's crown jewels. Contractors are understandably protective of these assets, especially when development is funded privately. However, the DoD's increasing reliance on contractor-owned data has created friction, particularly when the government seeks broader rights than contractors are willing to grant. This tension has led to delays in sustainment, increased costs, and reduced competition in the defense industry. While DFARS and FAR provide a regulatory framework for negotiating data rights, inconsistent implementation and a lack of early planning have hindered effective enforcement. As a result, both government and industry stakeholders are calling for clearer guidance, earlier negotiations, and more balanced approaches to data rights acquisition.

These challenges are especially pronounced in the Navy's experience with the F/A-18E/F program, where limited access to technical data has constrained depot-level maintenance and delayed capability upgrades. The successful acquisition of a TDPs by PMA-265 in 2025 marks a pivotal moment, offering a replicable model for future negotiations and life cycle sustainment planning. However, while this case provides valuable insights, significant gaps remain in our understanding of how program offices

navigate complex negotiations with OEMs, particularly in high-value weapon systems. Researchers have identified a need for more granular, program-level analysis to uncover the institutional, procedural, and cultural factors that influence data rights acquisition. Additionally, comparisons with the FAA's data retention model highlight alternative approaches to balancing proprietary protections with long-term access needs. This case study aims to address these knowledge gaps by examining what is currently known, what remains uncertain, and what future research must explore to support more effective and sustainable acquisition strategies across the DoD.

A. DATA RIGHTS

Understanding technical data rights has become an increasingly important focus in defense acquisition. The conversation surrounding data rights has shifted from a narrow legal and contractual concern to a broader strategic issue, particularly as weapon systems become more complex and sustainment costs rise. At its core, data rights refer to the government's ability to access, use, and share technical data developed under contract—rights that are essential for ensuring that procured items meet operational needs and can be supported throughout their life cycle (Schwartz, 1994, p. 514). These rights determine the extent to which the DoD can independently maintain, upgrade, or competitively reprocure systems without relying on the OEM.

1. Definitions

In the context of defense acquisition, technical data includes engineering drawings, specifications, standards, process information, and other forms of documentation required for the operation, maintenance, or manufacture of a system or component. The DFARS classifies rights into three primary categories: Unlimited Rights, Government Purpose Rights (GPR), and Limited Rights. The type of rights obtained depends on the source of funding (government, contractor, or mixed) used in development.

Table 1 simplifies data rights into three main categories, highlighting the relationship between funding source and data use. This framework allows the government to meet operational and sustainment needs while also protecting contractors' proprietary

interests. Beyond these primary categories, DFARS guidance identifies eight specific technical data scenarios, each granting different levels of access and usage rights based on how, and by whom, the data was developed.

Table 1. Rights in Technical Data. Source: DFARs 252.227-7013

Rights Category	Definition / Scope	When Government Receives These Rights
Unlimited Rights	Rights to use, modify, reproduce, perform, display, release, or disclose technical data in whole or in part, in any manner, for any purpose, and to authorize others to do so.	- Developed exclusively with Government funds - Form, fit, and function data - Installation, operation, maintenance, training data (except detailed manufacturing/process data) - Corrections or changes to Government-furnished data - Publicly available or previously released without restriction - Previously granted unlimited rights - Data with expired limited or government purpose rights - Contracted studies, analyses, test data, or similar deliverables
Government Purpose Rights	Rights to use, modify, reproduce, release, or disclose within the Government and to third parties for Government purposes.	- Data developed with mixed funding - Created in a contract not requiring item development but using mixed funding
Limited Rights	Rights to use within the Government, but not for manufacturing, or commercial use without permission. Disclosure outside the Government is restricted.	- Data developed exclusively at private expense and properly marked - Created exclusively at private expense under non-development contracts

B. DOD HISTORICAL IMPORTANCE TO MAJOR WEAPON SYSTEMS, CURRENT CHALLENGES, AND IMPACTS ON MISSION

The DoD has consistently encountered challenges sustaining its legacy weapon systems. For example, the Air Force and Army are unable to develop long term sustainment plans for their aircraft due to the lack of technical data rights (GAO, 2006). "DoD's acquisition policies do not specifically address long-term needs for technical data rights to sustain weapon systems over their life cycle, and in the absence of a DoD-wide policy" causing military entities to operate independently rather than having a joint method of obtaining technical data (GAO, 2006, p. 11,).

Historically, the DoD has relied heavily on defense contractors to both develop and sustain major weapon systems. This model, particularly effective during the Cold War era when contracting out R&D was a strategic means of leveraging private sector expertise (Keegan, 1964), initially enabled rapid innovation. However, as these systems age, the government's dependence on proprietary contractor-controlled technical data has become increasingly problematic. Contractors often retain ownership of the most valuable IP, limiting the DoD's ability to perform independent maintenance or introduce competition into the aftermarket (Schwartz, 1994). From the contractor's perspective, data rights are essential for safeguarding proprietary processes and preserving a competitive edge—especially in a commercial environment where IP is considered a firm's "crown jewels" (Magnuson, 2018). This fundamental misalignment of incentives has led to friction, delayed modernization, and rising sustainment costs—ultimately threatening mission readiness and strategic deterrence. As Magnuson (2018) observes, the absence of a consistent framework for defining technical data requirements has further exacerbated these challenges, resulting in program-level inconsistencies that complicate acquisition and sustainment planning.

1. Why Technical Data Matters

A 2020 audit by the DoDIG further illustrated the Navy's challenges in maintaining inventory for five critical F/A-18 E/F spare parts. The report recommended that the program office "develop and implement a strategy to obtain technical data, obtain access to technical data, or mitigate the barriers when the contractor owns the data rights in order to increase the Navy's repair capability" (DoDIG, 2020, p. II). These recommendations reflect the impact that lack of technical data has on operational readiness. Technical data which includes drawings, specifications, test procedures, maintenance instructions, and engineering analysis is essential for manufacturing, repairing, and sustaining parts (GAO, 2020, p. 15).

As sustainment contracts have evolved, the DoD has increasingly relied on private contractors for technical support, making access to technical data essential for managing long-term system performance and cost-effectiveness. Moreover, early acquisition

decisions that fail to secure adequate data rights can significantly constrain future sustainment options and increase life cycle costs (Mandelbaum, Vickers, & Hermes 2012). Schwartz (1994) emphasizes that the government's ability to reuse technical data in future procurements is often at odds with contractors' interests in protecting proprietary information, creating a persistent tension in acquisition strategy.

When technical data is not secured early, specifically during the requirements development or RFP phase, later acquisition becomes significantly more cost prohibitive (Defense Acquisition University, 2019). Delayed or absent data rights limit the DoD's ability to source components from alternate suppliers or establish organic repair capabilities. By securing full access to TDPs, the Navy can enhance maintenance flexibility, reduce dependency on OEM, and build supply chains capable of meeting operational demands (DoDIG, 2020).

There are four critical reasons why technical data matters, particularly in the context of the F/A-18 E/F. They are long term sustainment and uninterrupted supply chains, legacy innovation and obsolescence mitigation, third-party vendor operations, and organic production and procurement.

2. Contractor Perspective

Intellectual property and technical data are central to a defense contractor's competitive position, providing a foundation for both market differentiation and long-term viability in commercial and government sectors (Trend, 2005). Contractors place high value on retaining control of these assets, yet the DoD acquisition policies often require contractors to relinquish or license their technical data rights, particularly under rigid DFARS requirements. These strict stipulations, coupled with limited room for negotiation, have led many contractors to withdraw from procurement opportunities where they perceive their proprietary technologies are at risk (Censer, 2016). As Kelly Scott of Rockwell Collins noted, a "steady stream of policies" is discouraging private investment in defense-related R&D unless fully government-funded, reducing the DoD's access to cutting-edge commercial technologies (Censer, 2016).

A major industry concern is the DoD's routine request for unlimited rights to technical data, often without fully evaluating whether such access is necessary for sustainment or mission success. This approach is particularly problematic when contractors have funded the development independently, as it exposes proprietary innovations to potential misuse or redistribution, including to competitors (GAO, 2002). In several cases, firms delayed or declined to compete for contracts when data rights terms jeopardized their core technologies. Compounding this issue, contractors have expressed doubt about the DoD's ability to safeguard intellectual property once agreements are in place (GAO, 2002). Although agency officials acknowledge that data rights can become contentious, they rarely cite examples where the lack of agreement prevented access to needed technologies. Still, DoD officials remain concerned that these unresolved IP challenges are deterring participation from top-tier commercial tech firms, hindering joint research and limiting access to sustainment data critical for life cycle support and future competition (GAO, 2006).

In response to growing concerns and confusion surrounding intellectual property (IP) and technical data rights, the DoD and legal practitioners have developed resources to help contractors navigate the regulatory landscape. One of the earliest government-issued tools is the Layman's Guide to Intellectual Property in Defense Contracts (DoD, 2003), which was created to provide contractors with a clear explanation of the DoD's perspective on IP and data rights. This guide outlines the DoD's rationale for seeking certain rights, emphasizing the government's interest in maintaining access to critical data for sustainment, competition, and mission assurance. It also helps contractors understand how the DoD interprets DFARS clauses, particularly in distinguishing between unlimited rights, government purpose rights, and limited rights, which can significantly affect how a contractor protects and delivers their proprietary information.

In addition to government-issued guidance, private legal and consulting firms have published complementary resources aimed at demystifying data rights for federal contractors. One notable example is Fox Rothschild LLP's Federal Contractor's Guide to Data Rights, which outlines common pitfalls and best practices for contractors working under defense contracts. This guide emphasizes several key principles: reading and

understanding all applicable clauses in the contract; becoming familiar with the relevant sections of the FAR and DFARS; documenting any ambiguity related to IP assertions; clearly marking deliverables with the appropriate legends; and seeking legal counsel when necessary (Schwarts et al., n.d.). These recommendations reflect broader industry efforts to ensure that contractors are proactively managing their IP risks and preserving their proprietary advantages while complying with federal regulations. Together, these resources illustrate a shared recognition by both the DoD and industry of the complexity and importance of technical data rights in defense contracting.

3. Long Term Sustainment and Uninterrupted Supply Chains

Access to technical data directly supports long-term readiness and life cycle sustainment. Without a TDP, the Navy remains dependent on OEMs for routine and depot-level maintenance, introducing risk when contractors discontinue production or exit the market. According to GAO (2021), insufficient data access frequently results in costly delays, sole-source dependencies, and unmet mission requirements. This challenge is compounded by the structure of many DoD sustainment contracts, which often lack incentives for cost reduction and long-term efficiency. This underscores the critical importance of technical data ownership in enabling the government to maintain flexibility, reduce life cycle costs, and ensure mission continuity in the face of contractor turnover or market shifts.

Sustainment and readiness are foundational pillars of military capability, and their neglect during early acquisition phases can lead to systems that are cost-effective in the short term but unsustainable in the long run. Sustainment planning must begin at the earliest stages of the system's life cycle, as it encompasses not only supplies and facilities but also the availability of trained personnel and robust supply chains. Additionally, systems with low technical readiness scores often require more extensive maintenance and support infrastructure, increasing the burden on supply chains and risking operational downtime. Therefore, integrating readiness and sustainment metrics into acquisition decisions is essential to avoid long-term operational and financial inefficiencies (Golany & Kress, 2020).

4. Legacy Innovation and Obsolescence Mitigation

Life cycle sustainment is a component of contracting; however, obsolescence is often addressed reactively and is not a primary focus during contract award (Adetunji, Bischoff & Willy, 2018). As weapon systems age, parts frequently become obsolete, and OEMs often discontinue production due to a lack of commercial viability. DoD contractors, operating as for-profit entities, are generally unwilling to maintain infrastructure for components with limited demand. Although obsolescence is a common challenge across the DoD, it is rarely emphasized during the development of new weapon systems, as contracts between the DoD and OEMs are often narrowly scoped (Adetunji et al., 2018). In the case of the F/A-18 E/F, the absence of technical data has limited the Navy's ability to sustain the platform in accordance with operational requirements. Dunn (2018) highlights this challenge, explaining that "the mere idea of starting a production line to build obsolete parts is amazing in itself" (p. 1). Technical Data Packages (TDPs) enable the Navy to proactively address sustainment planning, especially when integrated into new contract solicitations. Acquiring technical data at the time of contract award represents a proactive strategy to prevent obsolescence from disrupting life cycle sustainability. As Adetunji et al. (2018) emphasize, proactive management is the preferred approach to mitigating obsolescence, as it addresses issues before they escalate into critical sustainment risks.

5. Third-Party Vendor Options

Access to a TDP enables competition by allowing third-party vendors to bid on manufacturing and sustainment tasks. According to the Congressional Research Service (2020), this increased competition reduces long-term sustainment costs and enhances accountability. Although PMA-265's acquisition did not include full data ownership, it represents progress toward a more open vendor base. Moreover, having specifications readily available eliminates the need for time-consuming reverse engineering, thereby accelerating turnaround times for obsolete or scarce parts.

6. Organic Production and Procurement

With TDP and specifications, the Navy's organic maintenance depots can independently manufacture and test components without OEM involvement (GAO, 2025). This autonomy increases operational resilience and responsiveness, particularly during high-tempo operations. The F/A-18 E/F TDP, provided on hard drives, supports offline access and protects against contractor-imposed restrictions or connectivity limitations. Eliminating reliance on reverse engineering further streamlines production timelines and enhances depot-level self-sufficiency.

C. NAVY HISTORICAL IMPORTANCE TO MAJOR WEAPON SYSTEMS LIKE THE F/A-18 E/F, CURRENT CHALLENGES, MISSION IMPACTS

Within the Navy, this issue is particularly acute for high-value weapons systems. Limited access to technical data has constrained depot-level maintenance, delayed capability upgrades, and hindered efforts to shift sustainment work to alternate vendors. The F/A-18E/F program exemplifies the risks of inadequate technical data. Due to the absence of necessary data rights, the program has faced challenges meeting sustainment requirements. Specifically, depot-level repair facilities are unable to fix certain components, and the program office has acknowledged that they are unable to procure the required technical data because of high costs and delays in contractor negotiations (GAO, 2023).

This case reflects broader issues in how the DoD negotiates and manages technical data rights. As Simchak (2003) explains, the government's ability to use or share technical data is heavily constrained by the type of license acquired—ranging from unlimited rights to limited or government purpose rights—each with significant implications for sustainment flexibility. Moreover, Magnuson (2018) highlights that inconsistent practices across program offices and a lack of specialized acquisition personnel have led to unclear or insufficient data rights strategies, particularly in major acquisition programs. These gaps are especially problematic as the Navy seeks to reduce life cycle costs and increase competition.

Many long-term sustainment contracts lack incentives for cost reduction and do not adequately address data rights, leaving the government vulnerable to vendor lock-in and escalating support costs (Mandelbaum, Vickers, & Hermes 2012). Despite the critical role that data rights play in achieving life cycle affordability and operational agility, there remains limited published research on how the Navy systematically approaches the negotiation and enforcement of technical data rights for complex platforms.

1. Why the F/A-18 E/F TDP Acquisition Matters

The application of the F/A-18 E/F TDP acquisition extends beyond the program itself. It offers a replicable model for how the Navy and the rest of the DoD can assert their rights under DFARS 227.7103, especially when up-front data negotiations fall short. It creates a framework for future negotiations, and it provides a framework for negotiation post contract award if TDP is not provided as stated in the contract. The case also suggests that aligning early acquisition strategy with technical data requirements like the FAA's model of full data acquisition at certification can reduce life cycle costs and enhance production autonomy.

As noted by the FAA (AC 20–179), data retention mandates improve auditability and long-term planning, a framework that could help the DoD avoid repeated delays and cost overruns. GAO (2023) reported that technical data is of major concern across the entire aviation community in the DoD. Before obtaining the TDP with specifications, PMA-265 had limited access to data rights, which lacked detailed specifications and were only accessible through Boeing's system.

When a weapon system such as the F/A-18 E/F includes numerous subcomponents, determining funding sources for individual parts becomes increasingly complex. Without proper segregation of funds during research and development, it is nearly impossible to identify whether the DoD or the contractor financed the R&D for a specific component. This ambiguity directly affects the DoD's ability to assert its rights whether unlimited, government purpose rights, or limited rights—to the resulting technical data. Proper segregation of funds enables both the DoD and contractors to determine the government's entitlements under applicable data rights clauses. To support

this, DFARS 252.242-7006 requires that contractors maintain an adequate accounting system capable of ensuring traceability and auditability of funding sources.

2. What Do We Know, Not Know, and What Are Researchers Asking Future Researchers to Do?

Existing research has established that technical data rights play a pivotal role in determining the DoD's ability to manage life cycle sustainment, control costs, and maintain operational readiness. Multiple studies conducted by the GAO and DoDIG identify a lack of enforcement of contract clauses granting access to TDP, and emphasize the need for better sustainment planning, and earlier negotiation of access to technical data. According to the Government Accountability Office (GAO, 2006, p. 29), contractors "often resist including the contract clauses" that ensure government access to technical data, as they seek to protect their intellectual property rights. The GAO further noted that although such clauses may appear in contracts, it is often beyond the program office's scope to enforce the delivery of data rights. These findings underscore the importance of integrating data rights considerations into acquisition strategies from the outset to avoid long-term dependencies on OEMs and to enable competitive procurement.

Despite this foundational understanding, significant gaps remain in literature. Specifically, there is limited insight into how individual program offices, such as PMA-265, navigate these challenges, particularly in negotiating with major OEMs, such as Boeing. The government's increasing reliance on contracting-out for R&D has created persistent tensions over the acquisition and use of technical data, especially when contractors view such data as proprietary (Keegan, 1964). Additionally, the government's rights in technical data are often determined by whether the data were developed with public or private funds, and developers must proactively assert and mark their rights to avoid inadvertently granting the government broader licenses than intended (Simchak, 2003). The relationship between funding sources, intellectual property assertions, and regulatory compliance is often underexplored at the program level. Moreover, while legislative frameworks such as 10 U.S.C. § 2320 and DFARS provide guidance, their implementation across services and platforms is inconsistent, leading to varied outcomes in data rights acquisition (Schwartz, 1994).

Future research is needed to examine how program offices operationalize data rights policy in practice, particularly in high-value, technologically complex platforms. Scholars are encouraged to investigate the institutional, legal, and cultural barriers that hinder effective negotiation and enforcement of data rights. This case study of PMA-265's 2025 acquisition of the F/A-18E/F TDPs offers a valuable opportunity to explore these dynamics and to develop replicable models for improving acquisition outcomes. It also demonstrates a shift in how the Navy asserts its rights and navigates resistance from OEMs as well as offers a framework that can inform future acquisition strategies across other platforms. By bridging the gap between policy and execution, such research would contribute to a more comprehensive understanding of data rights implementation—ultimately supporting more resilient, competitive, and cost-effective defense sustainment strategies.

D. CONTRACT MANAGEMENT LIFE CYCLE (PROCUREMENT AND IMPLEMENTATION)

1. Contract Management Life cycle Phases: Pre-Award, Award, and Post-Award

The contract management life cycle in defense acquisition is divided into three phases: Pre-Award, Award, and Post-Award. Technical data rights are relevant in all three. During the Pre-Award phase, acquisition strategies must begin to address IP considerations, including technical data and software rights, even though system designs are often still conceptual (Atta et al., 2017, pp. 32–33). At each milestone thereafter, the IP strategy should be more fully developed and integrated into the Life Cycle Sustainment Plan (LCSP), yet implementation often falls short due to budget constraints, contractor resistance, or lack of expertise (Atta et al., 2017, pp. 33–37). In the Award phase, technical data rights must be clearly defined in contracts, but these provisions are frequently diluted or removed during negotiations (Atta et al., 2017, p. 37). In the Post-Award phase, enforcement of data rights becomes critical, particularly for sustainment and procurement, yet the government often struggles to assert its rights or obtain necessary data due to contractor noncompliance or ambiguous contract terms (Atta et al., 2017, pp. 38–41).

Despite the centrality of technical data rights throughout the life cycle, very little research has focused on the role of TDPs within the Contract Management Life cycle, especially in the naval aviation context. As Schwartz (1994) noted, the Department of Defense has historically struggled to balance its need for competition and cost control with the protection of contractor intellectual property, often defaulting to practices that favor government access at the expense of contractor innovation incentives.

2. FAR

The Federal Acquisition Regulation (FAR) provides an overarching policy but contains limited provisions specific to technical data. The FAR defers most of the guidance on data rights to the DFARS. FAR part 27 does, however, emphasize the need for clarity in deliverables, ownership, and intellectual property clauses within solicitations and contracts. The FAR recognizes that data rights have long-term implications for value, competition, and performance.

3. DFARS/NMCARS/GAO

DFARS Subpart 227 outlines detailed guidance on acquiring technical data and delineates rights categories based on funding sources. It also introduces the concept of Special Licensing Agreements (SLAs) and Other Transactions (OTs) as flexible tools for negotiation. NMCARS, the Navy-specific supplement to DFARS, mirrors much of this guidance but provides tailored instructions for naval contracting officers. GAO and DoDIG reports have repeatedly flagged inconsistent practices in acquiring and managing TDPs, highlighting lapses in early negotiation, poor documentation, and weak enforcement of rights clauses. These reports suggest that policy exists, but implementation is uneven.

4. What Do We Know, What Do We Not Know, and What Are Researchers Calling Future Researchers to Do?

There is consensus that technical data rights need to be addressed earlier and more systematically in the contract life cycle. While the policy framework exists, gaps remain in execution, particularly in how different service branches interpret and apply

regulations. Academic literature has yet to fully explore the institutional, legal, and cultural barriers which exist between branches that complicate TDP acquisition at the program level. There is a clear need for more granular, service-specific research into how technical data rights are operationalized through contract actions, especially in platforms with long-term strategic value, such as the F/A-18E/F. As noted by the Defense Acquisition University, inconsistent application of data rights policy across services and delays in early planning often hinder sustainment strategies and limit competition in long-term support contracts (Defense Acquisition University [DAU], 2019).

E. FAA TECHNICAL DATA RIGHTS MODEL

The FAA requires technical data submission for aircraft certification in compliance with 14 CFR 21.21 to ensure that airworthiness requirements are met. While the FAA can retain the data, companies may hold it on behalf of the FAA under a formal "data retention agreement," wherein the data becomes FAA property (Federal Aviation administration [FAA], 2013). Required technical data includes type design, operating limitations, test plans and reports, and flight manuals, all of which must be accessible for FAA review (FAA, 2013). Data retention agreements require listing all type design and substantiation data, including Designated Engineering Representative (DER)-approved data, and clearly identifying proprietary portions. Data must be accessible to the FAA in emergencies and provided in a readable format. Regular updates on stored project files are required to ensure data integrity.

Data provided in non-paper formats requires agreements such as a Partnership for Safety Plan (PSP) or a Memorandum of Agreement (MoA) (FAA, 2013). Data retained by applicants on behalf of the FAA must follow the FAA's records management schedule, remain accessible for regulatory purposes such as inspections or design reviews, and may not be destroyed (FAA, 2013). Applicants must maintain proper electronic storage, ensuring backup systems and legacy data retrieval capabilities. In the event of agreement termination, type certificate surrender, or revocation, all data must be transferred to the FAA in a readable format. While intellectual property rights remain with the original holder, public release of the data requires written consent (FAA, 2013).

The FAA ensures strict protection of proprietary data, with unauthorized release punishable under Title 18 of the U.S. Code. Proprietary data may only be disclosed with written consent from the owner, a court order, or under legal mandates such as statutes or bilateral agreements (FAA, 2013). Data retention agreements are non-transferable. In the case of type certificate transfers, the previous holder must either return FAA-related records or transfer them to the new holder if a new agreement is established. These agreements ensure the preservation, accessibility, and integrity of critical certification data while safeguarding intellectual property rights and supporting FAA oversight (FAA, 2013).

F. SUMMARY

While the existing body of literature on technical data rights, procurement frameworks, and regulatory compliance is robust, it remains largely procedural in nature. Much of the scholar works focus on statutory interpretation, acquisition policy, and the mechanics of DFARS and FAR implementation. However, there is a notable absence of applied research that examines how these frameworks are executed in practice—particularly within the context of Navy major weapon systems. The successful acquisition of the TDP for the F/A-18 E/F by PMA-265 in 2025 presents a rare opportunity to explore how a program office navigated institutional, legal, and contractual complexities to secure critical data rights post-award. This case offers a valuable lens through which to examine the operationalization of policy in a real-world setting, and it underscores the need for more grounded, program-level analysis.

Moreover, the prevailing literature tends to emphasize the contractor's perspective—highlighting concerns over intellectual property protection and competitive advantage—while offering limited insight into the government's tactical approaches to asserting its rights. This imbalance has left a gap in understanding how program offices like PMA-265 adapt their strategies to overcome resistance from OEMs such as Boeing. The successful acquisition of the F/A-18E/F TDP in March 2025 marks a significant milestone, not only because it was achieved outside the original contract award, but also because it offers a replicable model for future negotiations and life cycle sustainment

planning. It also underscores the importance of program-level initiative and leadership in navigating institutional inertia and leveraging policy flexibilities to secure mission-critical data.

Therefore, this capstone will present a focused case study on the F/A-18E/F TDP acquisition, which aims to address what remains unknown: how program offices can successfully negotiate technical data in complex, high-value platforms. By examining the institutional, procedural, and cultural factors that enabled PMA-265's success, this study will contribute to a more nuanced understanding of technical data rights acquisition. It will also provide a replicable framework for other program offices facing similar challenges. This case study is intended to bridge the gap between policy and practice, offering actionable insights that support life cycle sustainment, innovation, and operational readiness across the Department of Defense.

III. METHODOLOGY

A. PROCEDURES FOR CONDUCTING A CASE STUDY

The case study approach offers a lens through which to examine the broader issue of how the Department of Defense (DoD) negotiates access to technical data from defense contractors. As Yin (2018) notes, "a case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident." (p.18) This approach is particularly suited for understanding institutional, contractual, and policy-level factors that shape the government's ability to secure the data rights required for long-term sustainment.

There is no universally agreed-upon definition of a case study in research. Merriam and Tisdell (2015, p.37) describe a case study as "an in-depth description and analysis of a bounded system." Yin (2018) further defines it as a method ideal for exploring complex, contemporary issues where the researcher has limited control over events. Stake (1995), another prominent scholar, emphasizes the importance of flexibility in case study design, allowing for modifications throughout the study based on evolving questions and data availability.

Yin (2018) categorizes case studies into three types: explanatory, descriptive, and exploratory. Explanatory case studies aim to explain causal relationships, particularly when experimental or survey methods are inadequate. Descriptive studies provide detailed accounts of phenomena, while exploratory studies are used to identify patterns or generate hypotheses for future research. Given this study's focus on understanding how and why the DoD struggles with TDP acquisition from contractors, an explanatory case study model is most appropriate.

In designing the case study, the research applies Yin's (2018) framework as guiding principles for a quality case study: construct validity, internal validity, external validity, and reliability. These criteria found in Figure 1 ensure that the study's findings are credible and methodologically sound. At the same time, Stake's (1995) emphasis on

adaptive design is incorporated to balance methodological rigor with responsiveness to the complexity of real-world acquisition practices.

Tests	Case Study Tactic
Construct validity	• use multiple sources of evidence • have key informants review draft case study report
Internal validity	• do pattern matching • do explanation building • address rival explanations • use logic models
External validity	• use theory in single-case studies • use replication logic in multiple-case studies
Reliability	• use case study protocol • develop case study database • maintain a chain of evidence

Figure 1. Case Study Tactics for Four Design Tests. Source: Yin (2018).

B. RESEARCH DESIGN

We will be utilizing an explanatory case study for our research, as this format is well-suited for analyzing how PMA-265 addressed known challenges in negotiating and securing data rights from major weapon system manufacturers. Given the complexity of defense acquisition processes and the highly contextual nature of intellectual property negotiations, a case study approach allows for an in-depth examination of PMS-265's

assertion of contractual entitlements from Boeing for the F/A-18E/F program. This methodology is particularly appropriate for exploring the nuanced interplay between legal obligations, institutional practices, and contractor behavior, and it enables the researcher to identify barriers and potential enablers of successful data rights acquisition. By focusing on the F/A-18E/F program, the case study design supports the generation of actionable insights and contributes to the development of informed policy recommendations. See Figure 2.

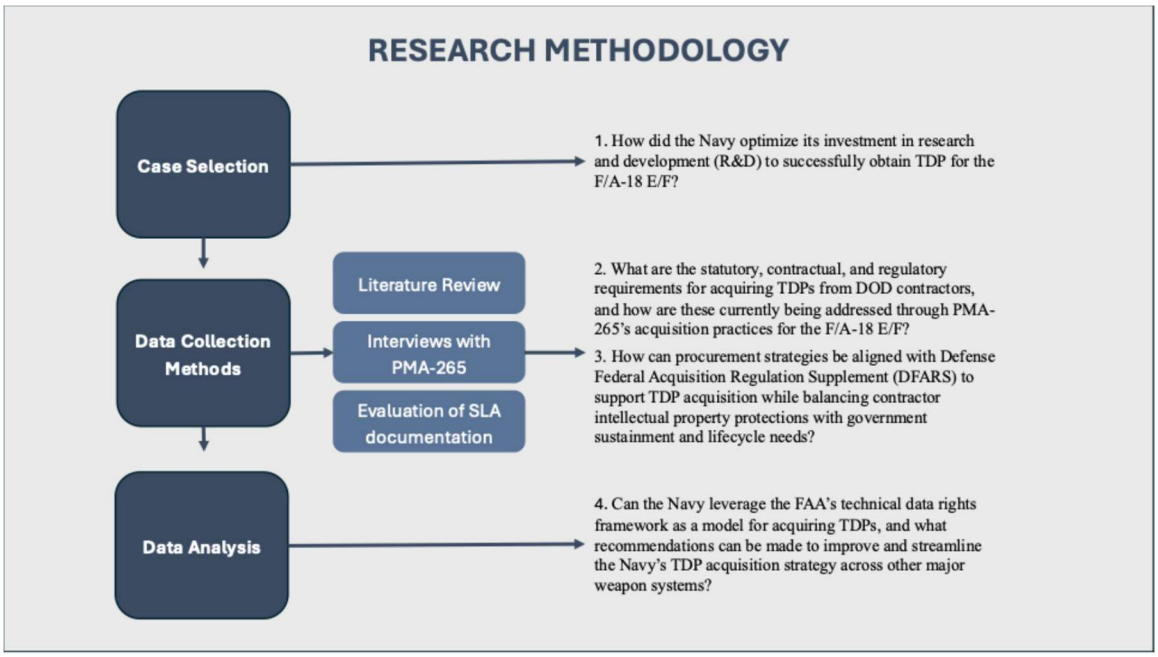

Figure 2. Research Methodology

C. CASE SELECTION

This case study centers on PMA-265's assertion of data rights from Boeing due to the exceptional significance of the accomplishment and the critical importance of the information obtained. This marks the first instance in which a DoD organization has successfully secured comprehensive, end-to-end data rights for a weapon system of such scale and complexity. The unprecedented nature of this achievement offers a rare and valuable opportunity to analyze a breakthrough in both contract execution and data rights acquisition. As such, this case provides a compelling foundation for understanding the

mechanisms, strategies, and institutional dynamics that enabled this outcome, with implications for future defense acquisition policy and practice.

D. DATA COLLECTION METHODS

The research begins with a review of DoD regulations, instructions, DoDIG reports, and GAO reports related to technical data rights procurement. This establishes the baseline for understanding the current frameworks governing technical data acquisition. Next, we will evaluate academic articles, scholarly journals, and industry publications to examine alternative methods and models for obtaining technical data rights. Based on this research, we have identified that the F/A-18 E/F program was an important shift in the DoD's history of securing TDP. Primarily through a group interview with the relevant members of the PMA-265 TDP acquisition team and analysis of relevant documentation received from the PMA-265 acquisition team, we will analyze the case of the acquisition of F/A-18 E/F TDP. This case study will assess the methods utilized, challenges encountered, and factors contributing to the successful outcome. Finally, we will perform a comparative analysis between existing DoD practices and PMA-265's acquisition strategy. This analysis will evaluate traditional and alternative models of technical data procurement, including early investment in research and development (R&D), Special Licensing Agreements (SLAs), and upfront negotiation of data rights. The findings will identify actionable recommendations to improve DoD procurement strategies and enhance long-term sustainment outcomes.

E. DATA ANALYSIS

In this study, we employed Narrative Analysis to interpret the data collected from various sources, including interviews, documents, and archival research. Narrative Analysis is particularly suited for this research as it allows us to explore the stories and experiences of individuals involved in the acquisition of technical data rights for the F/A-18 E/F program. This method helps to uncover the underlying themes, patterns, and insights that are crucial for understanding the complexities of the acquisition process (Yin, 2018).

Narrative Analysis was chosen for several reasons. Firstly, it provides a rich, detailed understanding of the experiences and perspectives of the participants (Merriam, 1998). Secondly, it allows us to place the acquisition of technical data rights within the broader context of defense procurement and life cycle sustainment. Thirdly, it helps in identifying recurring themes and patterns that are essential for drawing meaningful conclusions.

The Narrative Analysis followed a systematic process to ensure thorough and unbiased interpretation of the data. We began by thoroughly reading and re-reading the collected data to become intimately familiar with the content. This step involved noting initial impressions and identifying potential themes (Yin, 2018). We then constructed narratives that encapsulated the experiences and perspectives of the participants. These narratives were used to illustrate the key themes and provide a coherent story of the acquisition process. To ensure the reliability and validity of the findings, we cross-checked the narratives with the original data and sought feedback from participants where possible.

Through Narrative Analysis, several key themes emerged. These include the challenges in data rights acquisition, the specific strategies and approaches that led to the successful acquisition of the TDP, institutional barriers that impacted the acquisition process, and insights and lessons that can inform future acquisition strategies and policies.

The findings from the Narrative Analysis are presented in the subsequent chapters, where we discuss the key themes in detail and provide illustrative quotes and examples from the data. This approach ensures that the voices of the participants are heard and that the analysis is grounded in their lived experiences.

By following this structure, we effectively explain how Narrative Analysis was used to analyze the data in our study. This section provides a clear and comprehensive overview of our analytical approach, ensuring that readers understand the depth and rigor of our analysis.

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IV. ANALYTICAL DISCUSSION: HOW TO PROCURE TECHNICAL DATA

This chapter presents an in-depth analysis of PMA-265's acquisition of the F/A-18 E/F TDP and identifies key findings that address the Navy's long-standing challenges with life cycle sustainment and obsolescence. Drawing from the case study, the discussion evaluates the impact of early requirements definition and contract clause structuring on data access, how the Navy can better align its R&D investments with long-term sustainment goals, and the procurement strategies that have proven most effective in securing technical data. In addition, the chapter assesses how elements of the FAA's technical data framework can be adapted to strengthen Navy acquisition practices and reduce vendor dependency.

A. ANALYSIS OF FACTORS IN TECHNICAL DATA PROCUREMENT

1. Contract Clauses: Missed Leverage at Contract Award

The DFARS and FAR provide clear guidance for contracting officers and program managers to incorporate data rights clauses that protect the government's interests. The failure to obtain technical data is not due to a lack of statutory or regulatory authority, but rather a failure to enforce those rights as outlined in the contract. Across the DoD, inconsistent enforcement of technical data clauses has contributed to delayed access, increased costs, and contractor overreach, extensively documented by the GAO in multiple sustainment audits.

The inconsistent application of key data rights clauses—specifically DFARS 252.227-7013 (Rights in Technical Data – Noncommercial Items), DFARS 252.227-7014 (Rights in Noncommercial Computer Software), and DFARS 252.227-7025 (Limitations on the Use or Disclosure of Government-Furnished Information)—reflects a broader deficiency in contract training and execution. Many program offices and contracting officers vary in their interpretation of these clauses, resulting in poorly structured assertions, weak enforcement of government rights, and lost leverage at critical points in the acquisition timeline.

Effective enforcement of DFARS data rights clauses is essential not only for securing initial access to technical data but also for enabling third-party competition, reducing vendor lock-in, and supporting long-term life cycle logistics. In the case of the F/A-18 E/F, earlier enforcement of these clauses would have allowed the Navy to engage alternate vendors for parts production and sustainment activities, thereby mitigating readiness shortfalls across the fleet. Although this analysis is centered on PMA-265's experience, it reflects broader DoD wide issues identified by the GAO. According to GAO's Weapon System Sustainment report (2023), inadequate access to technical data has impeded sustainment efforts across all branches of the DoD. Notably, prior to the establishment of PMA-265's SLA with Boeing, GAO found that the technical data available to PMA-265 was insufficient to perform necessary repairs. This reinforces the conclusion that while the F/A-18 E/F serves as the focal point for this case study, the findings are broadly applicable to future major weapons systems and underscore the need for early and enforceable technical data acquisition strategies.

2. R&D Investment: A Strategic Necessity for Data Access

The distinction between contractor-funded and government-funded R&D is more than administrative; it is central to data ownership. Contractors who self-fund R&D retain exclusive control over the resulting technical data, thereby limiting government access and negotiating leverage. In contrast, DoD-funded R&D enables the government to assert data rights, whether in the form of Unlimited Rights or Government Purpose Rights and supports long-term sustainment and autonomy.

Early investment in R&D, either through direct funding or strategically negotiated clauses, remains one of the most effective ways to secure technical data without incurring downstream costs. When the government contributes to development at the outset of a program, it is better positioned to assert its entitlements and negotiate favorable data terms, especially in sole-source environments.

R&D funding should be treated as a strategic investment, not merely a technical cost. It is foundational to the government's ability to control system configuration, manage obsolescence, reduce total ownership costs, and maintain leverage in contractor

negotiations. The F/A-18 E/F case demonstrates the risks of underutilizing this lever, especially in programs where sustainment relies on OEM-controlled data.

Investing in R&D empowers program offices to incorporate and enforce specific technical data clauses in accordance with DFARS and FAR requirements. There is a direct relationship between government-funded R&D and the legal ability to negotiate and assert rights to the resulting data. When the DoD provides funding for development, it not only gains leverage in contract negotiations but also secures the statutory authority to include data rights clauses that facilitate access to TDPs. Conversely, in cases where the contractor fully funds R&D, the government is typically restricted to limited rights, significantly reducing its ability to manage sustainment independently. The F/A-18 E/F case illustrates that failure to invest in R&D early in the acquisition life cycle limits the Navy's ability to secure essential technical data, reinforcing the need to treat R&D funding as a strategic enabler of operational readiness and long-term cost control. Even when R&D is fully or partially government-funded, failure to properly assert data rights through enforceable clauses may leave program offices reliant on SLAs as a fallback, an approach that is neither guaranteed nor legally binding.

3. SLA as a Last Resort

Although PMA-265's use of an SLA ultimately enabled a successful transfer of the TDP, it is not the preferred method and should only be utilized as a last resort. SLAs are only a necessity when clauses are in place but the DoD approves a contract without receiving the technical data. SLAs lack the legal strength, enforceability, and long-term security provided by formal data rights clauses under DFARS. As the case of the F/A-18 E/F demonstrates, failure to negotiate and secure TDPs upfront can result in reduced leverage, constrained logistics, and the risk of contractor-driven limitations on access. Future programs need to prioritize formal, enforceable data rights acquisition early in the program life cycle.

In the finalized SLA, Boeing proposed the categorization of process specifications into three distinct tiers—Category 1 (Minimal), Category 2 (Moderate), and Category 3 (Severe). This tiered system is designed to stratify technical content based on its assessed

competitive value, particularly in relation to intellectual property sensitivity and economic impact on the enterprise. The authorized users are limited to three distinct groups – U.S. Government Employees, Contractor Support Services Employees, and Licensed Third Party Users.

- The U.S. Government employees authorized user category is comprised of civilian and military personnel providing direct support to the F/A-18 programs.
- Contractor Support Services (CSS) employees authorized user category is comprised of contracted, non-government personnel providing direct support to the F/A-18. This is extended to CSS employees located in the program office, on the Fleet Support Team (FST) and field and depot maintenance and repair sites.
- Licensed Third Party users are a person or entity that is not a party to the SLA but is an alternate source who requires a license with Boeing (Pro Forma) to utilize the specifications.

When TDP is not secured at contract award, it is more likely for program offices to face similar restrictive access conditions and increase costs that could have been avoided through earlier negotiations with contract clauses. See Figure 3.

	Department of Defense	Industry (Contractors)
Lack of Technical Data at Award	🔴	🟢
DFARS Clause Enforcement	🟢	🔴
Limited Use Rights (SLA Only)	🟠	🟢
Vendor Lock-In	🔴	🟢
High Sustainment Costs	🔴	🟢
Obsolescence Risk	🔴	🟢
Government Purpose Rights	🟢	🔴
Third Party Vendor Utilization	🟢	🔴

🔴 Negative / Challenge 🟠 Mixed / Conditional 🟢 Positive / Preferred

Figure 3. Comparison of DoD vs. Industry – TDP Perspectives

4. FAA Model Lessons and Limitations

This section evaluates the FAA's technical data framework and analyzes how the model could be tailored to the needs of the USN. The FAA operates in a regulatory environment focused on aircraft safety and certification. Its framework is characterized by early data submission and consistent enforcement of technical data requirements. These elements promote transparency, accountability, and prevent commercial vendors from failing to follow FAA regulations.

While the FAA model offers valuable best practices, its structure does not fully address the DoD's broader acquisition priorities. The DoD requires technical data not only for validation and compliance but also to sustain complex weapon systems over their life cycle, mitigate obsolescence, enable third-party maintenance, and maintain operational readiness. This necessitates enforceable contract clauses, early R&D alignment, and flexible data rights that can support DoD needs.

PMA-265's experience acquiring the F/A-18 E/F TDP from Boeing highlights key gaps in current DoD enforcement. Although DFARS clauses were in place, Boeing resisted delivery until the program threatened contractual default. Ultimately, the USN secured data through an SLA, a workaround that proved functional but suboptimal. The case underscores the critical difference in enforcement culture: the FAA mandates data for certification and consistently enforces its standards, while the DoD often negotiates under weaker leverage despite having contractual authority.

To address these issues, this study proposes a DoD-specific framework that draws from FAA strengths particularly early data planning and submission discipline while incorporating defense-specific requirements such as life cycle sustainment integration, third-party access, and classified data handling. This framework emphasizes stakeholder accountability and timely execution across the acquisition life cycle.

Table 2 compares FAA and USN technical data practices across five key dimensions: life cycle sustainment, early technical data delivery, data rights negotiation, data protection, and the ability to use data with third-party vendors. While both entities

require early access to data, their underlying motivations differ: the FAA for certification, the USN for operational sustainment and strategic flexibility.

Table 2. FAA v USN comparison

	Early Technical Data Delivery	Data Rights Negotiations	Data Rights Protection	Use of Data Rights	Lifecycle Sustainment	Mitigates Obsolescence
FAA	●	●	●	●	●	●
USN	●	●	●	●	●	●

As shown in Table 2, the USN requires a more comprehensive and operationally oriented approach to technical data management. Unlike the FAA, which retains technical data for regulatory purposes and prohibits third-party release, the DoD must be able to share data with alternative vendors to ensure life cycle sustainment while mitigating obsolescence. These distinctions must be reflected in policy, contract design, and acquisition planning to ensure the DoD can meet mission sustainment demands effectively.

V. CONCLUSION AND RECOMMENDATIONS

A. RESEARCH QUESTIONS

Question 1: *What are the statutory, contractual, and regulatory requirements for acquiring TDPs from DoD contractors, and how are these currently being addressed through PMA-265's acquisition practices for the F/A-18 E/F?* We found that while PMA-265 and many DoD contracts include the appropriate DFARS clauses pertaining to technical data acquisition, the core issue is not the absence of such clauses, but the DoD's failure to enforce them. Although PMA-265 eventually secured technical data through a SLA, this method is reactive and falls outside the statutory and regulatory framework intended for data acquisition. SLAs should be viewed as contingency measures rather than strategic tools. Additionally, the applicability of data rights is contingent on the source of R&D funding, which is governed by established DFARS rules and regulations.

Question 2: *How did the Navy optimize its investment in R&D to successfully obtain TDP for the F/A-18 E/F?* We concluded that early DoD investment in R&D grants greater leverage in securing data rights, enabling the government to better negotiate or enforce the delivery of technical data. However, we also found that contractor-side deficiencies in segregating R&D funds complicate the determination of data rights. Without clear fund auditability, both the DoD and contractors struggle to establish ownership or usage rights to technical data.

Question 3: *How can procurement strategies be aligned with DFARS to support TDP acquisition while balancing contractor intellectual property protections with government sustainment and life cycle needs?* We have found that this balance can best be satisfied by clearly asserting government rights to technical data (such as GPR or Unlimited Rights) during the pre-award phase, based on the source of R&D funding. This approach ensures access to necessary TDPs for sustainment and competition, while respecting contractor intellectual property through negotiated terms and, when necessary, contingent mechanisms like Special License Agreements.

Question 4: *Can the Navy leverage the FAA's technical data rights framework as a model for acquiring TDPs, and what recommendations can be made to improve and streamline the Navy's TDP acquisition strategy across other major weapon systems?* While the FAA presents a proactive and structured approach to securing technical data for aviation safety, it is not fully compatible with the Navy's operational, legal context, life cycle sustainment needs. However, elements of the FAA's model, such as clear requirements, proprietary rights protection, and requirement to provide technical data prior to release of a system could inform future revisions to DFARS clauses and Navy acquisition strategies.

B. SUMMARY OF KEY FINDINGS

The following paragraphs provide a detailed description of the three key findings that emerged from the research. They explain how PMA-265's experience can be used as a model to improve technical data acquisition across future DoD weapon systems.

1. Navy Needs to Better Utilize Contract Clauses related to TDP

Navy program offices inconsistently execute and enforce contractual mechanisms to obtain technical data early in the acquisition life cycle, a failure that impacted the F/A-18 E/F program. While PMA-265 included provisions for the TDP in the original contract, the failure to enforce delivery of the TDP upon award led to long-term sustainment and supply chain complications. Despite the government's entitlement to the TDP through GPR, derived from federally funded R&D, PMA-265 entered prolonged negotiations with Boeing and Congress years after the contract was awarded.

Technical data, which includes detailed drawings, specifications, and engineering documentation, is fundamental to life cycle sustainment, enabling competition for follow-on procurements and reducing reliance on the OEM. Programs that negotiate data rights and delivery clauses upfront—particularly during the Request for Proposal (RFP) and contract negotiation phases—are more likely to obtain TDPs at contract award, thereby reducing life cycle costs and enhancing strategic flexibility. This approach mitigates program delays and allows for earlier development of third-party contracts, minimizing the risk posed by obsolescence or OEM manufacturing constraints. Failing to pursue technical data based on

contract clauses is not only a matter of program efficiency but also a critical component of the DoD's obligation to act as a responsible steward of public funds.

The DoD has a fiduciary responsibility to taxpayers to determine, assert, and obtain the technical data to which it is entitled. In the case of the F/A-18 E/F, although GPR applied because the contractor did not privately fund the R&D, the government failed to assert its rights at the outset. Instead of securing the TDP when contractual leverage was strongest, the Navy entered reactive negotiations that hindered its ability to support sustainment independently and resulted in increased spending.

Furthermore, the complexity of systems such as the F/A-18 E/F, with numerous subcomponents, requires precise segregation of R&D funding to determine entitlement to specific data rights (unlimited rights, GPR, or limited rights). Without adequate cost segregation, the burden of proof shifts, making it difficult to determine whether the DoD or the contractor funded R&D for individual components. Proper clause execution, particularly DFARS 252.227-7013, requires that these distinctions be contractually documented with clear and specific verbiage.

This outcome was not due to a lack of legal authority, but a failure to apply and enforce DFARS clauses when our leverage was at its peak, a reoccurring behavior that has been noted by countless GAO and DoDIG reports. Instead of asserting our rights up front, the program office relied on post-award negotiations—an approach that weakened our position and increased long-term sustainment risk.

2. R&D Funding Directly Influences Technical Data Rights Access

Within DoD contracting, the source of R&D funding plays a pivotal role in determining ownership and control of technical data. Whether development is financed through government funds or contractor resources directly affects the allocation of rights under the FAR and DFARS, which in turn shape the government's ability to sustain, compete, and modernize its weapon systems.

When R&D is funded exclusively by the contractor, the resulting technical data is generally subject to limited rights for the government, allowing the contractor to retain

ownership and assert control over its use. This enables firms to protect their intellectual property and leverage proprietary innovations in future contract negotiations. Conversely, when R&D is partially or fully funded by the government, the resulting technical data typically carries Unlimited Rights or GPR, enabling the DoD to use, reproduce, and share the data with third parties for defense-related purposes.

Jointly funded R&D efforts introduce further complexity. In such instances, the DoD is generally entitled to GPR, provided that the contractor can demonstrate proper segregation and accounting of funding sources. Without adequate segregation, contractors may struggle to assert exclusive rights, and the government may find it difficult to substantiate its entitlements under DFARS 252.227-7013. Thus, precise tracking and documentation of R&D expenditures are essential to ensuring enforceable rights and government access proportional to its investment. Direct funding for R&D is not the only source of obtaining technical data.

IR&D, as defined under FAR 31.205-18, refers to contractor-initiated R&D not tied to a specific government contract, but which may be reimbursed if it aligns with certain criteria (DoD, 2020). Although IR&D is not initially funded by the DoD, when the government elects to reimburse IR&D costs, the technical data developed with those funds should be treated as if developed with government funding. In such cases, the DoD is entitled to receive GPR in accordance with DFARS 252.227-7013. This reimbursement changes the nature of the funding relationship and strengthens the government's claim to access technical data, if specific clauses are used when contracts are awarded.

R&D is not just a technical investment, it's a contractual instrument that gives us leverage. Choosing to invest early in R&D improves our data access posture and reduces reliance on sole-source vendors.

3. SLA Is a Contingency Method – Not a Primary Strategy (SLAs Are Reactive, Not Strategic)

PMA-265 successfully acquired TDP with specifications from Boeing by signing an SLA. When data is not formally delivered under DFARS provisions and remains contractor-controlled under proprietary markings, access can still be obtained through an SLA when

proper clauses are in the contract. In such cases, the SLA serves as a negotiated mechanism allowing the government to operationalize its GPRs despite contractor resistance. Specifically, the SLA between the Navy and Boeing permits use of designated technical data solely for the operation, maintenance, sustainment, and repair of F/A-18 platforms, both ashore and afloat. Covered data includes Boeing Process Specifications, McDonnell Material Specifications, and proprietary manufacturing processes unique to Boeing. (PMA-265, 2025)

While the SLA enabled data access in this case, it was necessitated by the Navy's failure to secure the TDP during the initial phases of the acquisition life cycle. This omission led to prolonged negotiations, legal ambiguity, and a diminished government bargaining position. Unlike formal DFARS or FAR contract clauses, SLAs are administrative in nature and lack statutory enforceability. As a result, they do not oblige the contractor to deliver or license technical data unless explicitly negotiated. This increases the risk of delayed access, additional costs, and dependence on a sole-source provider.

Proactively securing TDPs at contract inception enhances the Navy's technological and logistical agility. Early acquisition of technical data supports program offices in controlling configuration management across the product life cycle, developing competitive sourcing strategies for upgrades and maintenance, avoiding sole-source dependencies, and reducing long-term total ownership cost. As a result of not securing TDP access to at the outset of the contract the SLA imposed restrictive conditions.

C. LIMITATIONS

This study is bounded by its single-case methodology and focuses on one program office, PMA-265. While the findings offer critical insights into the challenges of acquiring technical data for the F/A-18 E/F, they are not fully generalizable across all Navy or DoD weapon systems. The explanatory case study approach provides depth but limits breadth; thus, broader trends in acquisition practices may require analysis of additional programs across services.

D. FURTHER RESEARCH

1. Future research should evaluate how NAVSUP can leverage the acquisition of technical data to proactively address obsolescence risks across priority weapon systems. This includes identifying procedures NAVSUP uses to build and sustain inventories, assessing how technical data informs inventory forecasting, and examining how NAVSUP is utilizing data to promote third-party competition and reduce long-term sustainment costs.

2. A comprehensive audit of technical data clauses across Navy aviation platforms and other major weapon systems is necessary to determine whether adequate data rights have been secured. This analysis should also evaluate whether government-funded R&D was present, whether clauses align with DFARS/FAR requirements, and whether the rights obtained are sufficient to support full life cycle sustainment.

3. Further exploration is needed into how the FAA's technical data framework can inform revisions to DFARS and FAR policy. This includes the potential for mandating delivery of technical data upon contract award and clarifying usage rights through standardized clauses, with the goal of reducing ambiguity and increasing government leverage.

4. A review of how contractors segregate government and private R&D funds would support the development of improved acquisition policies. Greater transparency in funding sources is essential to enforcing DFARS data rights provisions. Research in this area should assess current contractor accounting practices and recommend regulatory updates that ensure the DoD can assert the appropriate level of rights to resulting technical data.

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Acquisition Research Program
Naval Postgraduate School
555 Dyer Road, Ingersoll Hall
Monterey, CA 93943

www.acquisitionresearch.net