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**INTELLECTUAL PROPERTY RIGHTS FOR
SOFTWARE DATA AND DOD ACQUISITION
POLICIES AS THEY PERTAIN TO SMALL BUSINESSES**

Lama, Izah M.; Wright, Susan

Monterey, CA; Naval Postgraduate School

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NAVAL POSTGRADUATE SCHOOL

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JOINT APPLIED PROJECT REPORT

INTELLECTUAL PROPERTY RIGHTS FOR SOFTWARE DATA AND DOD ACQUISITION POLICIES AS THEY PERTAIN TO SMALL BUSINESSES

September 2022

By: Izah M. Lama
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REPORT DOCUMENTATION PAGE			<i>Form Approved OMB No. 0704-0188</i>	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.				
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE September 2022		3. REPORT TYPE AND DATES COVERED Joint Applied Project Report
4. TITLE AND SUBTITLE INTELLECTUAL PROPERTY RIGHTS FOR SOFTWARE DATA AND DOD ACQUISITION POLICIES AS THEY PERTAIN TO SMALL BUSINESSES			5. FUNDING NUMBERS	
6. AUTHOR(S) Izah M. Lama and Susan Wright				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000			8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release. Distribution is unlimited.			12b. DISTRIBUTION CODE A	
13. ABSTRACT (maximum 200 words) Intellectual property (IP) rights play an important role in DOD acquisition by providing a framework for competition, innovation, and technological trajectory. Poorly defined data rights can be problematic for the DOD and can strangle innovation that might otherwise be useful to the public. Small businesses that lack adequate resources required to cater to the extensive acquisition requirements of the government may be subjected to unfair competition, slow or no growth opportunities, and prejudiced innovation. Furthermore, small businesses might face challenges in complying with the extensive DOD acquisition parameters, thus disincentivizing them from engaging in business with the government. This research explores the effectiveness of the current DOD acquisition policies and procedures governing intellectual property rights and examines how these data rights policies apply to and affect small businesses. The methodology herein includes an in-depth literature review of existing legislative and policy initiatives and their effectiveness in the Small Business Innovation Research (SBIR) program. The findings determine that the current DOD policies and procedures are disadvantageous to small businesses and create a negative perception of the DOD acquisition process. This research recommends reframing the existing training and continuing education programs of the DOD acquisition workforce in order to improve and encourage successful IP acquisitions with small businesses.				
14. SUBJECT TERMS intellectual property rights, software data, small business, DOD Acquisition, DOD Acquisition Policies in Software Data Rights			15. NUMBER OF PAGES 75	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT UU	

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ACQUISITION POLICIES AS THEY PERTAIN TO SMALL BUSINESSES**

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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN CONTRACT MANAGEMENT

from the

**NAVAL POSTGRADUATE SCHOOL
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INTELLECTUAL PROPERTY RIGHTS FOR SOFTWARE DATA AND DOD ACQUISITION POLICIES AS THEY PERTAIN TO SMALL BUSINESSES

ABSTRACT

Intellectual property (IP) rights play an important role in DOD acquisition by providing a framework for competition, innovation, and technological trajectory. Poorly defined data rights can be problematic for the DOD and can strangle innovation that might otherwise be useful to the public. Small businesses that lack adequate resources required to cater to the extensive acquisition requirements of the government may be subjected to unfair competition, slow or no growth opportunities, and prejudiced innovation. Furthermore, small businesses might face challenges in complying with the extensive DOD acquisition parameters, thus disincentivizing them from engaging in business with the government. This research explores the effectiveness of the current DOD acquisition policies and procedures governing intellectual property rights and examines how these data rights policies apply to and affect small businesses. The methodology herein includes an in-depth literature review of existing legislative and policy initiatives and their effectiveness in the Small Business Innovation Research (SBIR) program. The findings determine that the current DOD policies and procedures are disadvantageous to small businesses and create a negative perception of the DOD acquisition process. This research recommends reframing the existing training and continuing education programs of the DOD acquisition workforce in order to improve and encourage successful IP acquisitions with small businesses.

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LIST OF ACRONYMS AND ABBREVIATIONS

AFRL	Air Force Research Laboratory
BBP	Better Buying Power
CS	Commercial Computer Software
DFARS	Defense Federal Acquisition Regulation Supplement
DISA	Defense Information Systems Agency
DOD	Department of Defense
DSTA	Defend Trade Secrets Act of 2016
FAR	Federal Acquisition Regulation
FPDS.NG	Federal Procurement Data System-Next Generation
GAO	U.S. Government Accountability Office
GPR	Government Purpose Rights
IMPLAN	Impact Analysis for Planning
IP	Intellectual Property
NAVAIR	Naval Air Systems Command
NAVSEA	Naval Sea Systems Command
OSA	Open System Architecture
R&D	Research and Development
RR	Restricted Rights
SBC	Small Business Corporation
SBIR	Small Business Innovation Research
SNLR	Specifically Negotiated Rights
STTR	Small Business Technology Transfer
UR	Unlimited Rights
USAMRAA	U.S. Army Medical Research Acquisition Activity
USC	United States Code
USPTO	United States Patent and Trademark Office

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EXECUTIVE SUMMARY

Swift technological advances in the past few decades have called for an unforeseen evolution of intellectual property worldwide. This rapid progression of pioneering technology in the private sector is not only essential to the growth and development of the DOD, but also imperative to its strategic adaptation around the changing threats to our national security. Equal opportunity and fair competition allows the DOD access to all available options, promotes innovation, and encourages economic growth.

Intellectual property rights play an important role in DOD acquisition by providing a framework for competition, innovation, and technological trajectory. Poorly defined intellectual property rights can be problematic for the DOD by strangling competition and innovation that might otherwise be beneficial to the public. Additionally, throwing small business enterprises to the DOD acquisition mix might make acquiring intellectual property from small businesses even more complex. Small businesses may not have the adequate resources, or the requisite knowledge of the extensive acquisition requirements of the DOD, hence hindering growth and innovation. Lastly, small businesses may face challenges in complying with the DOD acquisition parameters in addition to the complex trade secrets, copyrights, and IP regulations, essentially dis-incentivizing them from engaging in business with the Government.

In this joint applied project, we seek to explore the effectiveness of the current DOD acquisition policies and procedures that govern intellectual property rights. We will further explore how these policies and procedures apply to small businesses and specifically, how software data rights directives alter small businesses' engagement with the DOD in intellectual property acquisitions.

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I. INTRODUCTION

Intellectual property represents the process of innovative development of unique products and processes and involves intricate ownership, control, and transfer implications (Government Accountability Office, [GAO], 2002). It represent intangible assets and knowledge or proprietary information that are usually difficult and expensive to create but easier and cheaper to recreate. Historically, the DOD reserved the rights to innovations that were developed under a contract using federal funding with a few exceptions. In 1980, the Patent and Trademark Laws Amendments were enacted which helped establish grounds for a uniform policy for those inventions that were developed under a federally funded contract (Schacht, 2009). This act is familiar to the public as the Bayh-Dole Act and applies to non-profit organizations, universities, and small businesses, permitting them to reserve the rights to and profit from their innovations subject to certain requirements and, as such, the Government reserves the right to retain data that are not exclusive, transferable, or revocable to include royalty-free licenses to use such innovations (Government GAO, 2021). There are various types of intellectual property protections such as patents, copyrights, trade secrets, and trademarks each with their own unique purpose and function. As a 2002 Government Accountability Office (GAO) report noted, “Only the federal government issues patents and registers copyrights, while trademarks may also be registered by states that have their own registration laws. State law governs trade secrets” (p. 4). In addition to the traditional intellectual property protections, data rights and obligations oversee the reproduction, disclosure, or modification of software and technical data that are produced or delivered while performing a federal contract. Successful acquisition of intellectual property with well-defined rights and that which protects the best interests of the concerned parties, is critical to competition, innovation, and eventually economic growth and development. It discourages proprietary vendor-lock and allows competition, which drives innovation higher and sustainment costs lower. Poorly defined intellectual property rights on the other hand can result in loss of valuable knowledge and stifle the growth and development of critical applications that might be necessary for the

health and safety of the public. Table 1 illustrates various forms of intellectual property protections.

Table 1. Forms of Intellectual Property Protections.
Adapted from FAR 27 (2022).

- **Patents** provide exclusive rights to make, use, import, sell, and offer for sale an invention for up to 20 years.
- **Trademarks** protect words, names, symbols, sounds, or colors that distinguish goods and services.
- **Copyrights** protect works of authorship, such as writings, music and works of art that have been tangibly expressed.
- **Trade secrets** are information that companies keep secret to give them an advantage over their competitors. The formula for Coca Cola is the most famous trade secret.

A. BACKGROUND

In a 1999 Army Logistics Management College (ALCM) article, Nelson et al., discuss the increasing role that software plays in DOD weapon systems operation; Command, Control, Communications, Computers & Intelligence (C4I) systems; and management information systems (Nelson et al.,1999). Initial development and dissemination of software technology is typically very costly. However, reproduction and distribution of similar technology is theoretically “free,” thus providing a basis for the importance of data rights because it helps maneuver and determine the extent to which data can be used, reproduced, modified, released, or disclosed by the cognizant parties. While copyrights or patent titles to data rights are retained by the contractor, DOD obtains a license to use the data, whereby the type of license depends on the type of license rights. In the 2012 report Data Rights Valuation in Software Acquisitions, the authors reported about the increasing scrutiny over who owns and controls data and data rights as they pertain to technical data, computer software, and special works. This scrutiny became more prominent over the last couple of decades as more modern weapons systems relied progressively on improved technology and innovations (Nelson & Head, 2012). Over the years, the increasing scrutiny over ownership and control of data and data rights has led to several legislative and policy changes in addition to ongoing initiatives to clarify the

Government's position on acquisitions involving data rights. This research will focus on the effectiveness of such data rights and acquisition policies. Furthermore, small businesses that do not normally conduct business with the DOD but have intellectual property that could be of great use to the DOD might be discouraged from conducting business with the DOD due to perceived barriers of a complex DOD acquisition process. The Small Business Innovation Research (SBIR) Program is a product of the Small Business Development Act, which was enacted in 1982 to facilitate business engagement between Federal agencies and small businesses (Small Business Innovations Development Act [SBIDA], 1982). The structure and objective of the SBIR program and the act are further elaborated in a 2003 article, Purpose and Performance of the Small Business Innovation Research (SBIR) Program by Ronald S. Cooper, wherein the author explains how the act mandated Federal agencies with an external R&D budget over \$100 million to allocate a portion of their budget for awards to small businesses (Cooper, 2003). Federal agencies participating in the program are required to honor and protect software data rights for at least four years after the project completion, hence providing additional incentives for participating firms to commercialize their technology (Cooper, 2003). While there is a diverse range of business areas among SBIR award winners, software development is an important aspect of business conducted with the Government. Following our primary concerns, this research will explore whether the complex acquisition policies and DOD software data rights discourage small businesses from conducting business with the DOD.

Data Rights Valuation in Software Acquisitions

Rapid innovation and technological advances in the recent decades have helped develop intellectual property into an important factor by shaping a company's competitive edge both directly as well as indirectly. Companies that maintain a well-established claim to their intellectual property rights experience exclusive competitive advantage and are often able to secure successful acquisitions within both the private and public sectors. According to Nash and Rawicz (2008), this added competitive advantage encourages companies to safeguard their intellectual property rights and drives their reluctance to share their proprietary information with the DOD.

On the other hand, proprietary technologies might serve as barriers for new entrants, thus limiting the DOD from experiencing the full spectrum of a competitive acquisition pool, hence contributing to strangling innovation and reducing competition. To add to the mix, intellectual property might sometimes be developed by nontraditional vendors or small businesses that might not be privy to the extensive acquisition procedures of the DOD. The DOD maintains ownership of intellectual property that is developed by federal employees and acquires certain rights and licenses for the use of intellectual property developed by non-federal employees while working on federally funded contracts. The scope of Government license for intellectual property depends on various factors such as data and data rights value, public or private funding, and special terms and agreements entered upon in accordance with the contract (DFARS 227.7203-5, 2022). Some data rights pertaining to form, fit, and function data are automatically transferred under the contract to the Government with unlimited rights while various federal laws, regulations, and policies govern those that are not automatically transferred to the Government (FAR 27.404, 2022). These will be discussed in a later chapter. The DOD continues to emphasize heavily on reducing entry barriers to encourage innovation and competition.

B. OBJECTIVES

Intellectual property rights play an important role in DOD acquisition by providing a framework for a company's competitive edge, innovation, and technological advances. Poorly defined data rights can be problematic for the DOD and strangle innovation that might otherwise be useful to the public. In addition to innovation and competition, national security is another aspect that needs close attention when it comes to intellectual property rights. Without well-structured policies and rights that govern intellectual property, our adversaries could easily breach our national security layers, leaving our nation susceptible and vulnerable to attacks. The risks associated with intellectual property rights and DOD acquisitions are heightened when conducting business with small business enterprises that might not necessarily have the resources and personnel required to cater to the extensive acquisition requirements of the Government. Small businesses might face challenges such as lack of resources to maintain compliance with the current DOD acquisition parameters.

Furthermore, complex trade secrets, copyrights, and intellectual property regulations can create a daunting environment which might provide a disincentive for industries, especially small businesses, to engage in business with the DOD. In this thesis, we primarily seek to explore the effectiveness of the current DOD software data rights and acquisition policies that govern intellectual properties. As a follow up, we seek to explore how the current DOD software rights policies play their part when they pertain to small businesses.

C. RESEARCH QUESTIONS

This research examines the following questions and explore the current culture, policies, and regulations in software data rights as they pertain to DOD acquisition. We will also explore whether these current policies are enhancing or hindering the acquisition transactions with small businesses and what measures can be taken to improve future acquisitions in software data rights with small businesses.

Primary Research Question: How effective are the current DOD software data rights and acquisition policies?

Secondary Research Question: Does the current DOD software rights policy hinder or discourage small business enterprises from engaging in business with the DOD?

D. SCOPE OF RESEARCH

This research includes a literature review of existing legislative and policy initiatives pertaining to intellectual property rights in software data rights, the Small Business Innovation Research (SBIR) program, participation of small businesses in DOD acquisition, and open systems initiatives within the DOD and private industry. We focus our experiential research primarily on current DOD software data rights, acquisition policies, and the effectiveness of the initiatives in the SBIR program.

E. REPORT ORGANIZATION

This research project is organized sequentially, accentuating intellectual property rights as they pertain to software and specifically within small business enterprises and

DOD acquisitions. The chapter organization is designed to provide the reader sufficient context on current DOD software data rights, acquisition policies, and their effectiveness.

Moving from Chapter I, which is a high-level introduction and background of this joint research project, in Chapter II we dive into various laws, regulations, and policies that govern various data and data rights. Chapter III will focus on different clauses that govern intellectual property (IP) data rights, expanding into ownership versus DOD license rights and various exceptions that apply. Then Chapter IV will focus on an in-depth literature review of relevant case studies and GAO reports and explore the current position of small business intellectual property rights and DOD acquisition. The final Chapter V will include our research conclusions and provide recommendations for existing concerns followed by areas of future research that can be explored to encourage innovation and competition as they pertain to intellectual property software rights.

II. INTELLECTUAL PROPERTY CATEGORIES AND LAWS

To many, intellectual property can be an overwhelming topic. This chapter will discuss the definition of intellectual property and provide a thorough breakdown of its categories. An article from Investopedia.com describes intellectual property as an overarching category for a group of non-physical and valuable assets owned by a person or a business which are protected by several laws (Kenton, 2021). The article further advises that this protection or set of laws, provides the owner the rights to the asset and will not allow for the use of, or any implementation of the asset without the owner's consent. The article also stresses that, "the concept of intellectual property relates to the fact that certain products of human intellect should be afforded the same protective rights that apply to physical property, which are known as tangible assets" (Kenton, 2021, para.2).

The World Intellectual Property Organization defines intellectual property as "creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce (World of Intellectual Property Organization [WIPO], n.d.). IP is protected in law by, for example, patents, copyright, trademarks, and trade secrets, which enable people to earn recognition or financial benefit from what they invent or create" (World of Intellectual Property Organization [WIPO], n.d. para.1).

Intellectual property can be complicated, time consuming, and cumbersome with rules and regulations, therefore Congress allocates the supervision of IP between two Government agencies: the U.S. Patent and Trademark Office and the U.S. Copyright Office (Cornell Law School, Legal Information Institute, n.d.c.). Congress retains the power to regulate intellectual property according to an article by The Legal Information Institute of Cornell University, stating that the intellectual property clause gives "Congress the power to regulate patents and copyrights through the Constitution via the U.S. Constitution, Article I, Section 8" (Cornell Law School, Legal Information Institute, n.d.k.). Congress also maintains the power to regulate trademarks through the Commerce Clause, which gives Congress the power to manage the regulations for commerce internationally, amongst numerous states, and within Indian tribes. Patents and trademarks that are registered on a

federal level are issued and scrutinized by the U.S. Patent and Trademark Office (PTO) (Cornell Law School, Legal Information Institute, n.d.c.).

Other Government entities have also been appointed to oversee the remaining aspects of intellectual property. According to Cornell Law School, “Copyrights are exclusively regulated by federal law and must be registered with the U.S. Copyright Office to be enforceable” (Cornell Law School, Legal Information Institute, n.d.d.). Similarly, trade secrets are governed through the Uniform Trade Secrets Act (USTA) and implemented and enforced through most states (Cornell Law School, Legal Information Institute, n.d.l. para.1). Cornell Law School also specifies that, for those that have not enacted USTA, any violations presented as an infringement are considered a common law torte (Cornell Law School, Legal Information Institute, n.d.l. para.3).

The policies and procedures surrounding IP can easily become overwhelming due to the various levels of authority that govern and oversee specific areas of IP. Moreover, small businesses may find it challenging to ascertain proper avenues when pursuing a business engagement with the Government that involves complex IP protections that are necessary to safeguard their business.

A. DATA RIGHTS

Small businesses may not completely understand that doing business with the Government might not fully protect their data rights. There is no preclusion for the Government from showing a product to other entities that can potentially reverse engineer the item when the Government indicates that it is only seeking limited data rights. For example, Pankowski and Field elaborates in a 2006 article published on NixonPeabody.com that, the law does not prohibit competitors from reverse engineering an innovation in order to encourage healthy competition, unless, the patent is specifically protected by the innovator. Therefore, developing a thorough proposal that covers all aspects of data rights is crucial to small business entities that want to obtain proper protections. This would also entail negotiating written protections before signing a contract with the Government (Pankowski & Field, 2006).

To further elaborate on the criticality of contractor education on data rights, Schwartz et al. state that, “every federal contractor that develops, sells or otherwise transfers or delivers ‘technical data’ or ‘computer software’ under a federal prime contract or subcontract needs to be aware of the contractual and regulatory ‘data rights’ provisions applicable to federal procurements. Data rights provisions determine the scope of the contractor’s and the federal Government’s rights in the technical data and computer software developed by the contractor” (Schwartz et al., n.d.).

When a business decides to contract with the Government and must work within the confines of data rights, having a full understanding of the breakdown within the confines of the term “data rights” is very important. Data rights can be further classified into “technical data and computer software” (DISA, n.d.). The FAR and DFARS clauses govern and regulate all policies and procedures of a DOD acquisition that involves technical and computer software (DISA, n.d.).

The availability of working capital is paramount for a small business to enter into a contract with the Government. It could be difficult for some small business owners or startups to maintain positive cash flow during a long-drawn-out contract cycle. According to an article from SBIR.gov, there are two Government initiative programs to assist small businesses at high risk with funding sources to do business with the Government. These are the Small Business Innovation Research (SBIR) program and the Small Business Technology Transfer (STTR) program. The article further states that, small business concerns recognized by the program must be a “for-profit company of 500 or fewer employees, 50% or more of which is owned and controlled by U.S. citizens or permanent resident aliens, and 49% or less of which is owned by a hedge fund, venture capital operating company or private equity fund” (Small Business Innovation & Research [SBIR]. n.d. Eligibility, para. 4). Additionally, the article advises that, under the SBIR/STTR program, the Government is prevented from disclosing data to outside sources. These protections fall under a nondisclosure agreement that “lasts for four years, starting at the end of the SBIR project. For DOD contracts under the DFARS, the nondisclosure period is five years, starting at the end of the project” (DISA, n.d.). Small businesses are often unable to obtain Government contracts because of lack of funding, lack of education,

or lack of resources. The SBIR and STTR are excellent programs that help small businesses gain traction in a highly complicated Government acquisition universe through their joint efforts with the Small Business Administration.

A SBIR.gov data rights tutorial indicates that, for data to qualify under the SBIR/STTR program, it must be: “(1) recorded information (i.e., reduced to writing and contained in a written document), (2) of a technical nature (non-technical data, such as cost and pricing information, for example, does not count), and (3) that is generated under an SBIR or STTR funding agreement” (SBIR, n.d. course 9, tutorial 2, para. 5). Furthermore, the article informs that for the Government to recognize data provided by a contractor as protected data, “it is critically important for the SBC [Small Business Corporation] to mark its SBIR/STTR data with the proper SBIR/STTR legend and language set forth in the applicable FAR or DFARS provision. If SBIR/STTR data is not properly marked with the correct language, it could lead to disclosure of the SBIR/STTR data by the Government” (SBIR, n.d.).

Finally, to reiterate how complicated data rights can be for contractors, Schwartz, Hibshman & Endersby emphasize on how “crucial it is for contractors to determine whether technical data or computer software is commercial or noncommercial, as this determination affects the scope of the Government’s licensing rights” (Schwartz et al., n.d. Commercial Data Rights, para 8). According to Schwartz et al., “Generally, contractors want their products deemed commercial items due to its benefits, particularly the waiver of certain FAR and DFARS requirements and the application of standard commercial licenses” (Schwartz et al., n.d.). This essentially means that when the Government obtains data rights through a contract, it will normally have the same rights to the data that are afforded to the public sector.

Schwartz, Hibshman & Endersby break down the qualifications of SBIR/STTR data, which must be as follows:

1. Recorded information (i.e., reduced to writing and contained in a written document);
2. Data of a technical nature (non-technical data, such as cost and pricing information, for example, does not count); and,

3. Data that is generated under an SBIR or STTR funding agreement (technical data developed by the SBC with its own private funds, for example, would not qualify as SBIR data because it was not generated under a SBIR/STTR funding agreement with the Government). (Schwartz et al., n.d.)

However, the information described above is not set in stone because the rights to data can be fluid based on the negotiation terms between the Government and the contractor. An article from The Defense Information System Agency website indicates that, even though the Government acquires a particular data rights license, the contractor also has retention rights. For instance, in the case of copyright ownership, “the contractor maintains ownership of the noncommercial technical data and computer software they have created and provided to the DOD” (DISA, 2022). The article also states that the Government and the contractor may agree under separate negotiated terms as to how the copyright information is disseminated between the two entities (DISA, 2022).

DISA specifies that, the scope of an agency’s licensing rights is usually determined through the source of funding, the type and distinguishing characteristics of the data, and any terms negotiated by the parties under the contract. Beginning with the source of funding, the scope of the project determines the level of data rights retained by either the Government or the contractor. Furthermore, if the source of funding for the project comes entirely from the Government, the “agency generally obtains an unlimited rights license in noncommercial technical data, noncommercial computer software and noncommercial computer software documentation” (DISA, n.d.). DISA also advises that there are certain categories of technical data, to which the Government automatically gets unlimited rights. These categories are, “(1) data pertaining to an item, component, or process (ICP) developed exclusively with Government funds; (2) form, fit, and function data; and (3) corrections or changes to technical data furnished to the Contractor by the Government” (DISA, n.d. section 3, para. 2).

The legal and regulatory section of the DISA website specifies that, if the project funding comes from both the “Government and the contractor, and the contractor delivers proprietary technical data or computer software, the agency may acquire a Government purpose rights license” (DISA, n.d.). This license allows the Government to modify,

reproduce, and disseminate that data within the confines of the Government without restrictions from the contractor (DISA, n.d.). Nevertheless, DISA indicates that, “if the project is exclusively funded by the contractor, the agency usually acquires a restricted rights license in noncommercial computer software” (DISA, n.d.), which, as indicated, constrains the Government to using the “computer program on one computer at a time” (DISA, n.d.). Additionally, DISA advises that, the Government may retain a “limited rights license in non-commercial technical data” (DISA, n.d.). Finally, the article concludes that, the limited rights license is very similar to a Government purpose “rights license in that the Government can use, modify, reproduce, release, perform, display, or disclose technical data, in whole or in part, within the Government” (DISA, n.d.). Tying this information back to the SBIR/STTR program and funding, the Small Business Administration supports small businesses in properly filling out the paperwork to specify the funding sources and determining commerciality of its data.

DISA concludes that, upon delivery to the Government and before acceptance, deliverables are inspected to determine whether it includes “restrictive markings limiting the Government’s licensing rights” under the scope of the contract, and that all licensing rights procedures under the FAR and DFARS are followed (DISA, n.d.). However, according to the Defense Acquisition University, if the type and functionality of the data involves any “form, fit and function data, or any data necessary for operation, maintenance, installation, and training purposes,” the Government may obtain unlimited rights regardless of the funding status (Data Rights Focus Sheet Final, 2014).

According to Acqnotes.com, the Government and the contractor may utilize Specifically Negotiated License Rights (SNLR). SNLR happens when the Government and the vendor come to an agreed upon arrangement through contract negotiations which allow for modifications to the standard license rights (Acqnotes Program Management Tool for Aerospace, 2022). The article further indicates that, this is usually accomplished through a separate license agreement which is incorporated into the contract. This agreement may limit how long the Government may retain the rights to the data agreed upon by both parties. Usually, the negotiated rights are not more restrictive than the regular agreed upon contract (Acqnotes Program Management Tool for Aerospace, 2022).

It might be assumed by many businesses that the Government has a policy to obtain ownership of data rights regardless of the circumstances. On the contrary, DISA dispels that myth by advising that, contract clauses and provisions must accompany all Government contracts pertaining to Data Rights. It goes on to say that, for Government contracts involving technical data, computer software, or any type of documentation, the rights accompanying the contract must follow the policies and procedures prescribed by the FAR and DFARS (DISA, n.d.).

When a specific need arises in a Government contract, FAR clauses are added and implemented to the request for proposal for the protection of both the contractor and the Government. These clauses require the offeror to submit a proposal with specific data marks indicating the level of usage for the Government and intended users. According to an article from Schwartz, Hibshman, & Endersby, there are three specific FAR clauses which indicate the level of rights and responsibilities of the contracting parties pertaining to data rights (Schwartz et al., n.d.). These clauses are:

1. FAR 52.227-14 – Rights in Data Main contract clause that outlines the respective rights of the contractor and Government in data and software that precedes the performance of the contract work. This clause also outlines the rights in data and software created during the performance of the contract. Pursuant to FAR 27.409(b)(1), this clause is inserted in solicitations and contracts if it is contemplated that data will be produced, furnished, or acquired under the contract unless one of the listed exceptions apply. See FAR 27.409.
2. FAR 52.227-15 – Representation of Limited Rights Data and Restricted Computer Software Outlines the Government’s known delivery requirements for data. Under FAR 27.409(c), this clause is inserted if the contracting officer desires to have an offeror state in response to a solicitation whether limited rights data or restricted computer software are likely to be used in meeting the data delivery requirements set forth in the solicitation. See FAR 27.409(c).
3. FAR 52.227-16 – Additional Data Requirements Allows the contractor, under certain circumstances, to order any data first produced or specifically used in performance of this contract. Under FAR 27.409(d), this clause is inserted in solicitations and contracts involving experimental, developmental, research or representations. This means keeping detailed logs about when each component of the data or software was developed and how it was funded. It also requires familiarity with the quagmire of data rights provisions and how they are applied. (Schwartz et al., n.d.)

The definitions and rules outlining data rights that we discussed above serve as a framework to clarify guidelines concerning small businesses and Government contracting. This information can be helpful in clarifying confusions and misconceptions surrounding data rights.

B. PATENTS

Initially patents were derived for the purpose of invention protection. Before protections were put into place, many inventors hesitated to publicize their work for fear that their ideas may be stolen or reproduced (Upcouncil Technologies Inc. 2022). For instance, as cited by an article from The U.S. Department of State, “Many small and medium size businesses rely on the protection of intellectual property rights for their livelihoods, whether they are producing specialty products or creating tailored content for local or global audiences” (U.S. Department of State, 2021). Additionally, the article goes on to say that “Trademarks protect their name or design from forgers. Without clear and enforceable IP rights, entrepreneurs and small businesses risk losing name recognition, brand loyalty, and millions of dollars in the marketplace to copycats and counterfeiters who steal their ideas and their reputations” (U.S. Department of State, 2021). The Legal Information Institute at Cornell Law School specifies that, “a patent grants the patent holder the exclusive right to exclude others from making, using, importing, and selling the patented innovation for a limited period of time” (Cornell Law School, Legal Information Institute, n.d.f.).

In an article titled, Patent Ownership Basics from Neustel Law, we learn that the owner of an invention under patent protection may still retain the right to grant authorization to anyone else to use the invention, or may provide a license to use that invention, so long as the terms are mutually agreed upon. The patent owner may also elect to sell the invention rights to a third party. In this case, that party becomes the patent owner. As Neustel Law indicates, “Ownership of a patent is important because the owner of the patent enjoys all of the rights, title and interest granted by the patent” (Neustel, n.d.). Additionally, “the owner of a patent can do the following with their patent rights: 1)

License the patent rights to one or more third parties to collect royalties; 2) Sell the patent rights; 3) Sue a patent infringer” (Neustel, n.d.).

It is important to understand that there are consequences for violating patent protections. Title 35, Section 271, of the United States Code defines patent infringement (35 U.S.C. § 271(a)). Patent infringement occurs when a party without authority, “makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent” (35 U.S.C. § 271(a)). Infringement can only occur during the active term of the issued patent. Patents can have an expiration date, which then can enable others to utilize the work. The World Intellectual Property Organization advises that, patent expirations usually occur “20 years from the earliest filing date” (WIPO, n.d.). This indicates end of protection for the patent owner and entry of invention into the public domain.

There are three different types of patent categories: utility, design, and plant. Not all patents are equal as indicated in an article found at Findlaw, which states that, “Each type of patent has its own eligibility requirements and protects a specific type of invention or discovery; however, it is possible for one invention or discovery to potentially have more than one type of patent available for it” (Findlaw, 2016).

Utility patents are amongst the most difficult to obtain. They are very time consuming and difficult to write. Furthermore, depending on the complexity, they can be extremely costly to the requestor. “Utility patents are difficult to obtain. For one, they are hard to write, the process may be time consuming and expensive to undertake, and their complexity may make them difficult to understand” (Kenton, 2021). Utility patents are classified by the creation or finding of “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement” (Cornell Law School, Legal Information Institute, n.d.d.).

Many individuals or companies desire a design patent because it helps to sell the product or item. Functionality and aesthetics are the main differences between a design patent and a utility patent. Thus, the protection determination is based on how an item looks versus how the item functions. A design patent provides protection for “any new, original, and

ornamental design for an article of manufacture” (Cornell Law School, Legal Information Institute, n.d.g.).

Professional plant biologists specialize in areas of plant genetics, reproduction, and plant breeding. It is important to protect their inventions or discoveries. This is done through a plant patent. According to the Cornell School of Law, “a plant patent is provided to whoever invents or discovers and asexually reproduces any distinct and new variety of plant, including cultivated spores, mutants, hybrids, and newly found seedlings, other than a tuber propagated plant or a plant found in an uncultivated state” (Cornell Law School, Legal Information Institute, n.d.h.). As shown in Figure 1, retrieved from LegalAdvantage.com, the United States has issued nearly 1,600 plant patents over the last 15 years.

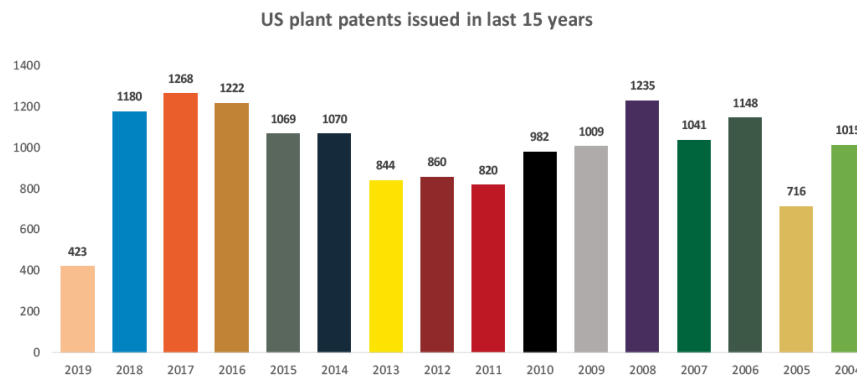


Figure 1. Plant Patents. Source: Legal Advantage (2019).

As part of the intellectual property family, patents can provide small businesses with the necessary protections when entering into a Government contract. Especially if a business has developed important technology, or any new invention that would be used during the course of the contract.

C. MARKS

The term Mark is an overarching category referring to service marks, certification marks, collective marks, and trademarks. According to the Cornell Law School, “A mark may be a word, name, symbol, or device, or any combination thereof” (Cornell Law

School, Legal Information Institute, n.d.e.). Furthermore, “if a person has a valid and lawful intention to use a word, name, symbol, device or any combination within the business market, they must register this as a service mark” (Cornell Law School, Legal Information Institute n.d.e.). A service mark generally outlines a provided service and identifies a company, not a product produced by the company, such as United Airlines, FedEx, or Marriott Hotels. According to Marshall Hargrave, “A service mark is a brand name or logo that identifies the provider of a service. A service mark may consist of a word, phrase, symbol, design, or some combination of these elements” (Hargrave, 2021). In addition, Cornell Law School further specifies that, “titles, character names, and other distinctive features of radio or television programs may be registered as service marks notwithstanding that they, or the programs, may advertise the goods of the sponsor” (Cornell Law School, Legal Information Institute, n.d.i.).

A collective mark is like a service mark, but it is used by “the members of a cooperative, an association, or other collective group or organization with a bona fide intention to use in commerce and applies to register on the principal register and includes marks indicating membership in a union, an association, or other organization” (Cornell Law School, Legal Information Institute, n.d.b.).

Also, according to the Cornell school of Law, “a certification mark is delineated by any word, name, symbol, or device, or any combination used by a person other than the original owner” (Cornell Law School, Legal Information Institute, n.d.a.). Furthermore, if the owner has a need or an intention to allow another person to use the certification mark in the marketplace, the user must “file an application to register on the principal register to certify regional or other origin, material, mode of manufacture, quality, accuracy, or other characteristics of such person’s goods or services or that the work or labor on the goods or services was performed by members of a union or other organization” (Cornell Law School, Legal Information Institute, n.d.a.).

Companies register their trademarks in order to distinguish their products from other competitors. For example, the Nike Company registers their shoes and clothing line trademark distinguishing its products from other competitors such as Reebok or Adidas. According to the United States Patent and Trademark Office, “Almost anything can be a trademark if it

indicates the source of your goods and services. It could be a word, slogan, design, or combination of these. It could even be a sound, a scent, or a color” (United States Patent and Trademark Office [USPTO], 2022). A trademark can be categorized as a “word, phrase, symbol, design or a combination of these things. A trademark accomplishes several things. It identifies the source of your goods or services, provides legal protection for a brand, and helps guard against counterfeiting and fraud” (USPTO, 2022). There are limitations on protections and registrations of a mark. According to United States Code 15 U.S.C. § 1052, a mark can have limited protections under the functionality doctrine. In addition, if it falls under certain categories listed it can be denied registration altogether (United States Patent and Trademark Office [USPTO], 2022).

To sum up, small businesses and startups can protect themselves from unnecessary legal issues, create a brand for themselves, and potentially create a stronger business simply by following the rules for registering their products and services.

D. TRADE SECRETS

Valuable corporate assets or proprietary information that are paramount to a company’s survival are protected by a trade secret and has the potential to be protected forever. An article from the National Law Review published in 2022 asserts that, “while patent law offers strong protections for proprietary inventions, obtaining a patent requires establishing that the invention is novel, non-obvious, and patent eligible.” The article also states that, “it also requires disclosure of the invention itself in the patent application. And while patents last for twenty years, they do not last forever” and elaborates that, “by contrast, trade secrecy provides another avenue to protecting a company’s IP that allows the inventions to be kept secret and potentially protected forever” (Kasdan et al., 2022).

The United States Patent and Trademark Office (USPTO) defines trade secrets as “information that has either actual or potential independent economic value by virtue of not being generally known, has value to others who cannot legitimately obtain the information, and is subject to reasonable efforts to maintain its secrecy. All three elements are required; if any element ceases to exist, then the trade secret will also cease to exist.

Otherwise, there is no limit on the amount of time a trade secret is protected” (United States Patent and Trademark Office [USPTO], 2022).

The Federal Government enacted two laws for the protection of trade secrets, The Economic Espionage Act of 1996 and The Defend Trade Secrets Act of 2016 (DTSA) (Kasdan et al., 2022). The “Economic Espionage Act makes it a criminal offense to steal trade secrets” (USPTO, 2022). There are two specific sets of circumstances whereby the law can be violated. First, the USPTO tells us that the “economic espionage refers to the theft of a trade secret” where an individual with criminal culpability “intends or knows that the offense will benefit any foreign Government, foreign instrumentality, or foreign agent” (USPTO, 2022). USPTO also advises that “the second offense, the theft of trade secrets, occur when a theft is tied to a product or service” (USPTO, 2022). The law indicates that there must be intent to use the product or service for personal gain and the use would pose injury to the owner of the trade secret. Finally, the USPTO article indicates that, “these crimes are prosecuted by the Department of Justice and are punishable by imprisonment and/or fines” (USPTO, 2022).

DTSA was formed as a derivative of the Economic Espionage Act. The USPTO stipulates that, this amendment allows for a “private civil cause of action for the misuse or stealing of a trade secret” (USPTO, 2022). By allowing a “private civil cause of action, trade secret owners have a legal way to protect their trade secrets anywhere in the United States” (USPTO, 2022). A benefit is that, DTSA does not prevent a trade secret owner from utilizing existing state trade secret law. Therefore, the option to use state or federal venues is an optimal advantage to the trade secret owner (USPTO, 2022).

According to the USPTO, Federal and State courts can protect trade secrets. They can order that the misappropriation stop or they can deny the secret from being visible to the public. In addition, the courts may order the confiscation of the stolen trade secret. USPTO states that, “at the conclusion of a trade secret case, courts can award damages, court costs, reasonable attorneys’ fees and a permanent injunction, if warranted” (USPTO, 2022). The acquisition of intellectual property can be confusing to many contracting professionals and contractors alike. There are determinations which should be made during the acquisition life cycle to assist all parties involved in understanding their rights

pertaining to the intellectual property being procured. An article from Acqnotes.com advises that, Government employees should determine who owns intellectual property in the course of their duties. Second, it must be determined who owns IP created by a contractor while performing the Government contract. Finally, it must be determined what rights the Government has when it receives technical data or software (Contracts & Legal, Intellectual Property, 2022).

To protect the Government and the contractors, the DOD has established certain policy guidelines for managing IP in the form of Department of Defense Instructions. DODI 5010.44 issued by the “Office of the Under Secretary of Defense for Acquisition and Sustainment, effective October 16, 2019, applies to the acquisition and licensing of IP acquired for DOD” (DAU, n.d.). Having clear policies and directives for both the Government and the contractors can provide a healthy environment for contract negotiations and alleviate conflicts between parties.

This instruction establishes a three-part purpose. First, the instruction delegates specific responsibilities, and it prescribes procedures for all areas of procuring IP. Second, the instruction establishes the DOD IP Team. Lastly, it designates a senior DOD official to oversee the process. In general, this instruction permits DOD to maintain consistency, develop and implement contracting, and sustain communication with industry. In addition, it assists program managers in understanding the IP rights and responsibilities for both the Government and contractors. This instruction lays out the best practices and guidance for customers in developing their requirement and for contracting officials in establishing the contract for licensing IP (Intellectual Property (IP) Acquisition and Licensing, DOD Instruction 5010.4, 2020).

E. COPYRIGHTS

When individuals or businesses apply for a copyright, it gives them the incentive and freedom to innovate without the fear of their work being copied or duplicated and allows them to retain recognition for their creation.

The Federal Government provides these protections through the United States Code at 17 U.S. Code § 105 - Subject Matter of Copyright. This section establishes protections

to authors of original works once they are put into a physical medium such as recordings, books, publications, or films to name a few.

According to the CENDI Copyright Task Group, protections afforded to copyright authors are as follows:

1. To reproduce the copyrighted work in copies or phonorecords.
2. To prepare derivative works based upon the copyrighted work.
3. To distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending.
4. To perform the copyrighted work publicly, in the case of literary, musical, dramatic, and choreographic works, pantomimes, motion pictures and other audiovisual works.
5. To display the copyrighted work publicly, in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work.
6. In the case of sound recordings, to perform the work publicly by means of a digital audio transmission. (Klein & Hodge, 2008)

Additionally, Klein and Hodge discuss how long copyrights last. Once a copyright has expired, the public has the right to reproduce, build upon or republish the material. They advise that, “under current Copyright Law, the copyright term for works created by individuals on or after January 1, 1978, is the life of the author plus 70 years. For works made for hire, the copyright term is 95 years from the date of first publication or 120 years from the date of its creation, whichever is earliest. The copyright term for works created before January 1, 1978, is a complicated determination and may require help from your General Counsel or the Copyright Office” (Klein & Hodge, 2008).

The U.S. Government is the exception and cannot be in violation of any copyright laws. As set forth in (28 USC § 1498(b)), Congress grants the Government, the ability to utilize protected work without violating copyright laws (Klein & Hodge, 2008).

To summarize, Chapter II covers a plethora of IP rules, regulations, and laws. The effectiveness of these rules, regulations, and laws boils down to thoroughly understanding them. In essence, to alleviate the confusion gap over intellectual property, we broke down the complex information for small and medium business owners who wish to contract with the Government.

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III. FARS AND DFARS IN DATA RIGHTS

The Federal Acquisition Regulation (FAR) was established to help set the stage for the classification and publication of uniform acquisition policies and procedures, and provide executive agencies direction and guidance in the acquisition field (FAR 1.101, 2022). The policies and procedures pertaining to data rights and their acquisition is prescribed in detail in FAR subpart 27.400. The federal Government recognizes the rights in data developed using private sector funds and therefore, obtains permission to use such data via licenses. These licenses are designed to help outline the extent to which the Government can use the intellectual property that belongs to the contractor (FAR 27.102, 2022). DFARS 252.227-7013 provides guidance and prescribes the policies and regulations for obtaining rights and licenses pertaining to technical data and computer software. As mentioned briefly in the prior chapters, the type of data rights that the Government acquires depends on the source of funding and various development criteria of the intellectual property, which we will discuss more in this chapter (DFARS 227.7203-5, 2022). Chapter II briefly touched on Data Rights and various laws and regulations that govern data acquisition. This chapter will dive a layer deeper into the specific FAR and DFARS regulations that govern intellectual property data rights and provide the regulatory framework that oversees the implementation of these laws and regulations.

A. DATA

We commonly refer to data as something that represents a group of facts that can be utilized for examination or analysis. According to FAR 27.401, data is a blanket term for technical information and computer software information that is recorded in any form and can be used at a later time. Data, however, does not include subsidiary financial, administrative, management information that pertains to the administration of the contract (FAR 27.401, 2022).

1. Form, Fit, and Function Data

When we think of form, fit, or function data, we allude to data that holds information regarding the characteristics, functionality, and physical attributes of an

intellectual property. According to FAR 52.227-14, form, fit, and function data refers to data that has information regarding the originating source, functional characteristics, and parameters for adequate performance. The information should, however, not include the specific algorithms, source codes, or intricate formulas of the software. This type of data is sufficient in enabling interchangeability of a software's physical and functional attributes (FAR 52.227-14, 2022).

2. Restricted Computer Software

As the name suggests, restricted computer software has some restrictions. FAR 27.402 defines restricted computer as computer software that is a trade secret, commercial, privileged, copyrighted, and developed using private funds (FAR 27.402, 2022). Data that identifies the source, functional attributes, and performance metrics of the software refers to the form, fit, and data function of the software data. Software form, fit, and function data as discussed above should not contain any specifically identifying algorithms, formulas, or codes. According to FAR 27.404-1, the Government generally procures licenses with unlimited rights to "form, fit, and function data" and data required for "manuals or instructional and training material for installation, operation, or routine maintenance and repair of items, components, or processes delivered or furnished for use under a contract" (FAR 27.404-1.b, c, 2022).

According to FAR 27.402, the Government requires data to

1. Encourage supplier competition,
2. Publish reports and disseminate them,
3. Warrant that innovations are being used appropriately in a matter that does not discourage participation,
4. Meet agency mission, objectives, and statutory requirements, and
5. Be flexible with various acquisition needs that are unique to the Government (FAR 27.402, 2022).

FAR policies and regulations are designed to help agencies drive their program missions, prevent the unauthorized use or disclosure of proprietary data, and encourage industry to engage in business with the Government. According to FAR 27.403, if a

contract requires the development or use of data, then the contract terms have to outline the rights of both parties (FAR 27.403, 2022). It is to be noted that the provisions and policy statements prescribed in FAR 27.402 apply to all executive agencies inclusive of the DOD but the remainder of the subparts exempt DOD and requires the application of DFARS policies and clauses (FAR 27.402, 2022). We'll discuss the DFARS clauses in more detail later in the chapter.

B. DATA RIGHTS

1. Unlimited Rights Data

Unlimited in layman's terms refers to having no boundaries, restrictions, or limitations. In terms of data rights, FAR 52.227-14.a describes unlimited data rights as the ability of the Government to use derivative data for any purpose in any manner without any restrictions. It also allows the Government to permit other to use the data however it deems fit for use (FAR 52.227-14, 2022).

FAR 27.404-1 goes into the details of when the Government acquires unlimited rights. These exclude copyrighted data as prescribed below:

- Data that is initially developed while performing a contract. Exceptions to this are minor modifications to "limited rights data and restricted computer software data" (FAR 27.404-1.a, 2022),
- "Form, fit, and function data" as prescribed in Chapter II (FAR 27.404-1.b, 2022),
- Data that is needed for training, maintenance, or operation purposes, and
- All data "other than limited rights data and restricted computer software" (FAR 27.404-1.d, 2022).

FAR 52-227-14 goes into the provisional rights of the contractor such as:

- Copyright data initially developed while performing a contract,

- The use of data initially developed or used during the performance of a contract in any manner the contractor wants,
- “Substantiate the use of, add to, or correct limited rights, restricted rights, or copyright notices” (FAR 52–227-14.c, 2022), and
- Protect their limited rights or restricted computer software data from being used or disclosed inappropriately (FAR 52–227-14, 2022).

Exceptions to the above provisions include data that is produced subsequently after the initial development of the data even if the contract is still valid, whereby the contractor is required to obtain prior written permission from the Government for use and dissemination of such data.

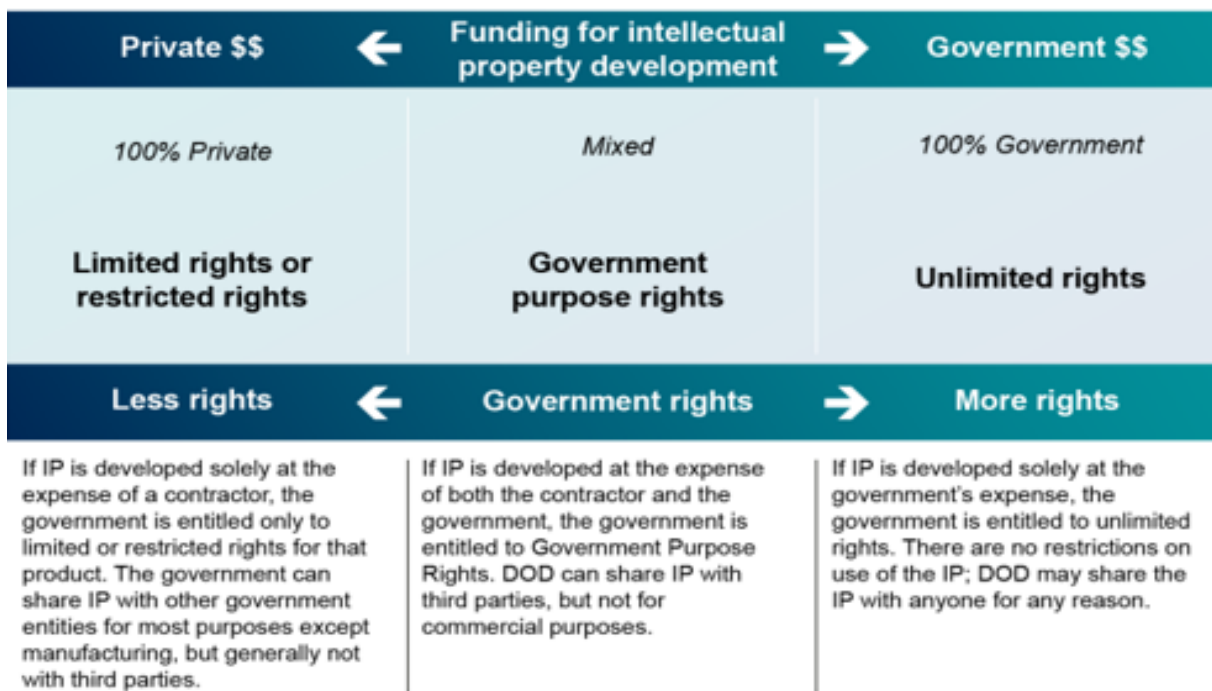
2. Limited Data Rights

The term “limited” signifies some form of restriction. In terms of data rights, FAR 52.227-14 defines limited data rights as data that is not computer software and is limited because they are trade secrets, copyrighted, privileged, or confidential. Data that are developed and modified using private funding usually have restrictions attached to how the Government uses them (FAR 52.227-14, 2022).

3. Restricted Computer Software

Similar to the limited data rights, restricted computer rights have restrictions in the extent of their usage. FAR 52.227-14 defines restricted computer rights as, “computer software developed at private expense and that is a trade secret, is commercial or financial and confidential or privileged, or is copyrighted computer software, including minor modifications of the computer software” (FAR 52.227-14, 2022). Restricted rights are those rights that are relevant to restricted computer software and the Government’s scope of use or dissemination.

Figure 2 summarizes the different type of IP rights that we discussed in this chapter as derived from a 2021 GAO report.



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

Figure 2. Types of Intellectual Property Rights. Source: Government Accountability Office (2021).

C. DOD ACQUISITION OF DATA

The DOD does business with various other federal agencies as well as industry to meet mission needs and different program requirements. The Government is not profit oriented unlike the commercial industry, which can create complex acquisition issues when doing business with the commercial sector. FAR 27.406 prescribes the general background for the basis of Government acquisition of data. The Government determines what type of data is required and includes it in the contract solicitations. These data requirements can be reviewed during negotiations and can easily become costly to prepare, format, maintain, and store for both the Government and the contractor. FAR guides both the Government and the contractor to minimize data requirements and maintain consistency that aligns with the contract mission to avoid unnecessary increase in costs (FAR 27.406-1, 2022).

In order to keep data requirements within a contract to a minimum and consistent, the Contracting Officers are required to follow specific FAR guidelines when administering DOD acquisition of data. According to FAR 27.406, Contracting Officers

are required to specify all known data requirements, limitations, delivery requirements, and restrictions that are applicable to the data acquisition in the contract (FAR 27.406, 2022). For contracts involving acquisition of major systems, data requirements are required to be identified as separate line items (FAR 27.406, 2022). Agencies are permitted to develop contract schedule provisions that are unique to their specific requirements. They can identify the source, assure delivery of data, and establish the specific contract requirements (FAR 27.406, 2022). According to FAR 27.406 section 1.c, contractors are not usually required to deliver unlimited rights in data for those unlimited rights that “qualify as limited rights data or restricted computer software” and the Government should not require these criteria as a condition for procurement (FAR 27.406-1.c, 2022).

It is not feasible to determine all of the data requirements while awarding a contract for some contracts that involve certain subjective research and developmental contracts. FAR 52-227-16 prescribes Additional Data Requirements, which allows the Government to acquire additional data once the actual requirements become more robust. FAR 27.406-2 permits the clause to be used when “experimental, developmental, research or demonstration work” are prescribed in the solicitations and contracts (FAR 27.406-2.a, 2022). An exception to this is if all requirements for data are known during contract specification (FAR 27.406-2, 2022). FAR 52.227-16 prescribes that data can be obtained “at any time during contract performance or within 3 years after acceptance of all” deliverables under the contract and contractor compensation is required for data that is converted in order to make it acceptable for distribution and reproduction (FAR 52.227-16.a, 2022). FAR 27.406, section 2.a states that the contractor may be relieved of retention requirements to minimize storage costs. If the data is “not necessary for meeting the Government’s requirement,” then the contractor has the flexibility of identifying such data that is not required to be delivered (FAR 27.406-2.a., 2022). Agencies are not allowed to order additional computer software for public use if an established dissemination program does not exist (FAR 52.227-16, 2022).

D. DOD AND ACQUISITION OF DATA RIGHTS DFARS

DFARS 227.72 prescribes the policies pertaining to the Department of Defense acquisition of Computer Software and Computer Software Documentation. The DOD is required to work with the contractors in determining acceptable terms and conditions for the transfer of data rights if they are not provided under the terms and conditions of the license. Additionally, the DOD can exercise only the rights specific to the license under the contract terms.

As discussed previously, the Government acquires various types of licenses defining the scope of use of the data, depending on the various requirements and funding sources. Computer software is categorized into commercial or noncommercial computer software and their acquisition varies depending on the scope of use which requires flexibility in the Government's licensing rights. Commercial computer software is developed for non-Governmental use by the private sector (Rights In Noncommercial Computer Software And Noncommercial Computer Software Documentation, 2014) and has no concrete contract clause that governs these rights in commercial computer software and its documentation. DOD's rights in commercial computer software or its documentation are all prescribed in the specific license agreement (DFARS 227.7202-4). Noncommercial computer software on the other hand is software that is developed for Governmental use (DFARS 252-227-7014.14, 2022) and has specific rights regarding the scope of their use. These rights are detailed in DFARS 252.227-7014.

DFARS 227.7103 talks about the rights of the contractor or licensor and permits them to maintain rights for data not transferred to the Government. The scope of the license for technical data referenced as "items, components, or processes" is determined by the type of funding that was used for the development of the data, while the source of funds used to develop the data itself is used to determine the scope of the license for technical data not referenced as such (DFARS 227.7103-4.a, 2022). As specified briefly in the beginning of this chapter, the contractor is typically the owner of computer software data in a DOD acquisition and DOD acquires license to use, disclose, or distribute the data as prescribed within the contract parameters. Standard license rights such as unlimited rights, Government purpose rights, and limited rights that a licensor grants to the DOD with

certain exemptions granting negotiation of special license depending on the situation is prescribed in DFARS 227.7103-5. It is to be noted that the contractor is not under any obligation to provide the Government with any rights that exceed standard license terms and the Government is not under any obligation to accept any rights that don't match the standard license terms (DFARS 227.7103-5). DFARS also prescribes DOD rights in software data based on whether the item, component, or process is commercial or non-commercial. DOD is to seek and acquire data rights that is typically available for public use with a few exceptions. The Table 2 shows a snapshot of the different types of license rights that are applicable to software data rights (DFARS 227.7103-5, FAR 27.404).

Table 2. Types of License Rights in Software Data. Adapted from DFARS 227.7203-5 and FAR 27.404.

License Rights	Purpose	Permitted Use
Unlimited Rights (UR)	The right to use or distribute derivative work in any manner for any purpose, or permit others to do so.	No restrictions if exercising within DOD
Government Purpose Rights (GPR)	The right to use, modify, reproduce, release or disclose within the DOD without restriction and outside the DOD for DOD purpose.	No restrictions if exercising within DOD
Restricted Rights (RR)	Applies to noncommercial computer software. The right to use data under special provisions, for specifically negotiated purposes.	Only one license on one computer program on one computer at a time.
Specifically Negotiated Rights (SNLR)	The right to use data for specifically negotiated purposes	Permitted for use under the provisions of the specific contract.
Commercial Computer Software (CS)	Right to use commercial software and commercial software documentation.	As specified in the license and typically provided to public for commercial use.

IV. POLICIES AND PROCEDURES, CASE STUDIES, REPORTS, AND GAO REPORTS REVIEW

In many cases, there are small businesses that lack knowledge or experience in protecting their IP rights. Most instances involve a lack of resources and limited business size. Over the years, contractors have consistently voiced concerns over the scope of technical data rights that the Government acquires through acquisition.

A 2018 report on Government-Industry Advisory Panel on Technical Data Rights, points out that the Government not always being specific in describing its needs early in the requirement process as a specific area of contention for contractors (National Defense Industrial Association 2018). The report continues, “source selections in the past often failed to include an evaluation factor for technical data or computer software, and the associated license rights, so the value of intellectual property in an innovative proposal was overlooked or not used to discriminate among proposals” (Government 813 Panel, 2018). “Industry perceives this trend as an arbitrary use of competitive pressures to obtain unnecessarily broad licensing terms, which discourages industry investment and may be contrary to 10 U.S.C. 2320(a)(2)(H) or 15 U.S.C. 638(j)(2)” (National Defense Industrial Association 2018. Section 4, para. 1). This can discourage small businesses from spending precious time and resources putting together expensive proposals.

When it comes to sourcing new technology, the DOD often attempts to alleviate risk by insisting it receives not only the rights to use the new technology, but also the data rights. These rights can include information on how to build the technology. Acquisition officials can tailor custom data rights packages using specifically negotiated rights as described in Chapter II; however, in practice these options fall into a set of canned licenses, which fall into two different spectrums. They can either be too limited or too expensive to accommodate software projects.

Another common factor that can be a barrier for small businesses when wanting to engage in business with the Government is the concept of “lock-in,” also referred to as “vendor lock-in.” According to the Technology and IP Law glossary, the term implies an economic environment created as a result of patrons not being able to switch vendors

readily due to higher “switching costs” (Technology and IP Law Glossary, n.d.). In certain situations, the cost of switching vendors might outweigh fair and open competition if it creates substantial loss of prior investment. Vendor lock-in might occur in cases where DOD might have incurred substantial upfront costs for an intellectual property that is not common and would require discarding it completely in order to switch vendors. Another reason the DOD might be hesitant to switch vendors are the needs of the consumer. Acquiring new IP from a new vendor may require additional resources to get the end-users up to speed with the new technology, the time and price for which might not be worth the switch.

This chapter will examine DOD policies in data rights, case studies, and Government Accountability Office (GAO) reports pertaining to SBIR/STTR. This will further assist in determining the effectiveness of the current DOD software data rights and acquisition policies.

A. DEPARTMENT OF DEFENSE DATA RIGHT GUIDELINES AND PRACTICES

For DOD to maintain consistency when acquiring IP, there must be a set of policies and procedures in place to guide contracting officers during the acquisition process. According to an article found at McGuire Woods, those rules fall under the FAR, DFARS, and DODI 5010.44 (Nagel, 2016). Additionally, by following these instructions, the contractor may retain ownership of any data they create; in turn, the Government receives a license to use the data (Nagel, 2016). However, during the contracting process, the Government may deviate from the standard FAR and DFARS provisions (Nagel, 2016)

FAR Part 27 states that, “The Government recognizes rights in data developed at private expense and limits its demands for delivery of that data. When such data is delivered, the Government will acquire only those rights essential to its needs” (FAR 27 Patents, Data, and Copyrights, 2022). The FAR also prescribes guidance to ensure there is fair competition on all contracts, and that the Government properly document its contracting actions (FAR 27 Patents, Data, and Copyrights, 2022). These rules set forth in

the FAR and DFARS allow Contracting Officers and industry to delineate the level of rights needed to produce a successful contract.

The FAR and DFARS contain contract clauses. According to [Contracts-counsel.com](https://www.contracts-counsel.com/), “A contract clause in a section in a legally enforceable contract that contains terms and conditions and important provisions of the legal agreement” (Contracts Counsel, 2021. para.1). These clauses are extremely important in protecting the contractor from potentially losing data rights and also preventing the Government from overstepping the confines of the contract. The following DFARS clause is a specific example of a common clause that is included in a DOD data rights contract:

The clause at 252.227-7015, Technical Data–Commercial Items, provides the Government specific license rights in technical data pertaining to commercial items or processes. DOD may use, modify, reproduce, release, perform, display, or disclose data only within the Government. The data may not be used to manufacture additional quantities of the commercial items and, except for emergency repair or overhaul and for covered Government support contractors, may not be released or disclosed to, or used by, third parties without the contractor’s written permission. Those restrictions do not apply to the technical data described in 227.7102-1(a). If additional rights are needed, contracting activities must negotiate with the contractor to determine if there are acceptable terms for transferring such rights. The specific additional rights granted to the Government shall be enumerated in a license agreement made part of the contract (DFARS 227.71, 2022).

B. CASE STUDIES AND REPORTS

For the Government to effect policy changes, it conducts numerous case studies, especially when it comes to the complicated realm of technical data rights. Furthermore, according to the GAO, Congress receives reports and testimonies which provide “fact-based information” that can help the Government “improve their operations and save taxpayers billions of dollars” (GAO, 2022. para. 1).

This chapter will examine several case studies and reports to allow readers to understand what goes into new policies, policy changes, and the development of directives.

To begin, a report by the Department of Defense Inspector General, indicated that 22 contracts were reviewed, which were “coded in the Federal Procurement Data System-

Next Generation (FPDS.NG) and were reviewed as SBIR Phase III contracts. These contracts had a combined base value of about \$244.9 million. DOD contracting personnel awarded 11 of the 22 contracts to other than small businesses” (Department of Defense Inspector General [DODIG], 2014). The report indicates the following organizations awarded the 22 contracts that were reviewed:

1. U.S. Army Medical Research Acquisition Activity (USAMRAA), 5 Fort Detrick, Maryland, 4 contracts, valued at about \$6.2 million.
2. Naval Air Systems Command (NAVAIR), Patuxent River, Maryland, 5 contracts, valued at about \$161.6 million.
3. Naval Sea Systems Command (NAVSEA), Washington Navy Yard, D.C., 5 contracts, valued at about \$32.7 million: and,
4. Air Force Research Laboratory (AFRL), Wright Patterson Air Force Base, Ohio, 8 contracts, valued at about \$44.3 million. (DODIG, 2014)

Through the investigation, the Inspector General found that, “DOD had inconsistent guidance and tracking efforts which may hinder the SBIR program” (DODIG 2014).

The report indicated that DOD organizations tend to inconsistently interpret many unclear and ambiguous requirements. This hampers program oversight and weakens protections over small business intellectual property. Without a clear interpretation of existing requirements, and policy, DOD organizations could face obstacles in exercising their rights to SBIR data. Thus, DOD would not have reliable data to report the success of the DOD SBIR Programs. As a result, DOD’s program oversight and the protections over small business intellectual property within the SBIR Program is weakened, and information provided to Congress is not complete. (Department of Defense Inspector General, 2014)

Problems occurred with DOD personnel’s interpretation of inconsistent policies.

Moreover, the report states,

USAMRMC, USAMRAA, NAVSEA, NAVAIR, and AFRL personnel relied on inconsistent policies for the application of intellectual property protections within the SBIR Program. DOD personnel relied on inconsistent policies in the SBA SBIR Policy Directive and DFARS 252.227-7018 to determine the start and the length of the protection period afforded to SBIR data. According to SBA SBIR Policy Directive section 8(b) (2), the protection period starts when the last deliverable under the contract is delivered. The protection period will be extended if the SBIR data is protected and referenced under a subsequent SBIR contract, even if the protection period previously expired. According to DFARS 252.227-7018

b (4) (i), project completion determines the protection period and DFARS is silent on whether the protection period can be extended or revived. Personnel at sites visited agreed inconsistencies existed in the SBA SBIR Policy Directive and DFARS 252.227-7018. DOD personnel noted the inconsistencies should be addressed and generally stated they follow DFARS. For example, the NAVSEA SBIR Program attorney and the Intellectual Property attorney stated they followed DFARS but did not know what they would do if they encountered a case of expired data rights because clear guidance was unavailable. Furthermore, DOD personnel interpreted the DFARS language differently. For example:

1. The Air Force SBIR contracting officer believed the protection period could be extended—but not renewed—after it expired. A NAVSEA Intellectual Property attorney and the USAMRAA SBIR contracting officer agreed the protection period could be extended;
2. The NAVAIR SBIR Deputy Project Manager believed the SBIR protection period could be extended by subsequent contracts and be renewed if expired; and,
3. A NAVAIR patent attorney interpreted the DFARS language to disallow for any type of extension. (Department of Defense Inspector General, 2014)

The Inspector General had the following recommendations based on their findings: “DOD officials should, develop training and issue guidance that will allow for a uniform interpretation of intellectual property protections across DOD, issue guidance to improve the accuracy of SBIR information being entered into existing databases; and address inconsistencies in DOD regulations regarding intellectual property protections” (Department of Defense Inspector General, 2014).

Additionally, the Government Accountability Office (GAO) in its report GAO-20-556, discusses the various interviews conducted with stakeholders that included small businesses, trade organizations, SBDCs, and U.S. Patent and Trademark Office (USPTO) affiliates and identified various challenges that small businesses and inventors faced when seeking intellectual property protections. “These challenges include: (1) the cost of acquiring intellectual property protections, (2) fully understanding the process of acquiring intellectual property protections, (3) becoming aware of ways to leverage such protections for one’s business needs, and (4) knowing how and where to get help from experienced professionals” (Neumann, 2020).

Moreover, The DOD SBIR Economic Impact 1995 2018 study was

[U]ndertaken to quantify the DOD SBIR/STTR Program's overall contribution to the national economy and the nation's defense mission. The research team developed innovative strategies to contact all 4,412 companies that initiated DOD SBIR/STTR Phase II contracts during the study period. Companies were asked to divulge the total sales of new products and services directly related to their DOD SBIR/STTR Phase II contracts. They also were asked about related economic outcomes, including sales to the U.S. military, follow-on research and development (R&D) contracts, licensing revenue, and sales by licensees and spin-out companies. Companies provided comprehensive information on the economic outcomes for 96 percent of the contracts. The research team was able to obtain full or partial information on other contracts through secondary research. In all, this study presents the economic outcomes of 16,516 of the 16,959 DOD SBIR/STTR contracts.

Fifty-Eight percent of the DOD Phase II contracts resulted in sales of new products and services based on the innovations developed under these contracts. Impact Analysis for Planning (IMPLAN) economic impact modeling software was used to estimate the overall effects on the U.S. economy from both the R&D expenditures and subsequent sales of SBIR/STTR-developed products and services. Study results are believed to significantly understate the actual economic impacts because of nonresponding companies, the effects of inflation, and other factors analyzed in the report. Overall results indicate the DOD has been successful at achieving the major economic goals of the federal SBIR/STTR mandates, spurring technological innovation, helping meet federal Government R&D needs, and achieving private-sector commercialization of innovations from federal funding investments. (Department of Defense, 2019)

Although the Economic Impact Study shows success in achieving SBIR/STTR goals and fostering technological innovation, a report from GAO indicates that there are legitimate industry concerns when it comes to data rights. Both industry and the Government indicated they had concerns about how intellectual property rights are written into contracts. Each side voiced apprehensions over the effectiveness and efficiency of contract negotiations. The following are excerpts from the report indicating numerous issues:

These concerns include a lack of good planning and expertise within the Government and industry's apprehensions over certain Government rights to data and inventions as well as the Government's ability to protect proprietary data. Industry officials were particularly concerned about the span of rights the Government wants over technical data. Industry officials asserted that rather than making a careful assessment of its needs, some contracting officers wanted to operate in a comfort zone by asking for

unlimited rights to data, even when the research built on existing company technology.

Much of this was disconcerting to potential contractors because it meant that the Government could give data to anyone it chose, including potential competitors. Some companies mentioned specific instances in which they delayed or declined participation in Government contracts. These situations occurred when companies believed their core technologies would be at risk and the benefits from working with the Government did not outweigh the risk of losing their rights to these technologies. Most agency officials said that intellectual property issues were at times hotly contested and could become the subject of intense negotiations.

While agency officials indicated that problems related to intellectual property rights may have limited access to companies, they did not raise or cite specific instances where the agency was unable to acquire needed technology. In some situations, agencies exerted flexibility to overcome particular concerns and keep industry engaged in research efforts.

It is generally agreed that “Some actions could be taken to address concerns about limited awareness of flexibilities and expertise without any legislative changes. Specifically, agencies could promote greater use of the flexibilities already available to them. DOD, for example, is advocating greater use of its ‘other transaction authority. This authority enables DOD to enter into agreements that are generally not subject to the federal laws and regulations governing standard contracts, grants, and cooperative agreements. By using this authority, where appropriate, DOD can increase its flexibility in negotiating intellectual property provisions and attract commercial firms that traditionally did not perform research for the Government (Brock Jr., 2002).

For many small businesses, intellectual property can be amongst the growing company’s most important and valuable assets. DOD relies heavily on research and development for advanced technology. However, if Government contracts contain vague or improperly defined data rights, there can be adverse effects on the contractor as well as the Government. Testimony provided to the GAO by the Managing Director, Acquisition and Sourcing Management, indicated that there are several industry and agency concerns over intellectual property rights. These concerns made them reluctant to contract with the Government. Brock’s GAO report also advises,

The primary vehicles for funding research efforts are grants, cooperative agreements, and contracts. Today, our focus is largely on intellectual property rights that the Government acquires through research done under contracts, which primarily fund applied research. As illustrated in the below, the R&D landscape has changed considerably over the past several decades. While the federal Government had once been the main provider of

the nation's R&D funds, accounting for 54 percent in 1953 and as much as 67 percent in 1964, as of 2000, its share amounted to 26 percent, or about \$70 billion, according to the National Science Foundation. (Brock Jr., 2002)

Figure 3 shows the various Research and Development funding from 1953 to 2000 as reported by the National Science Foundation.

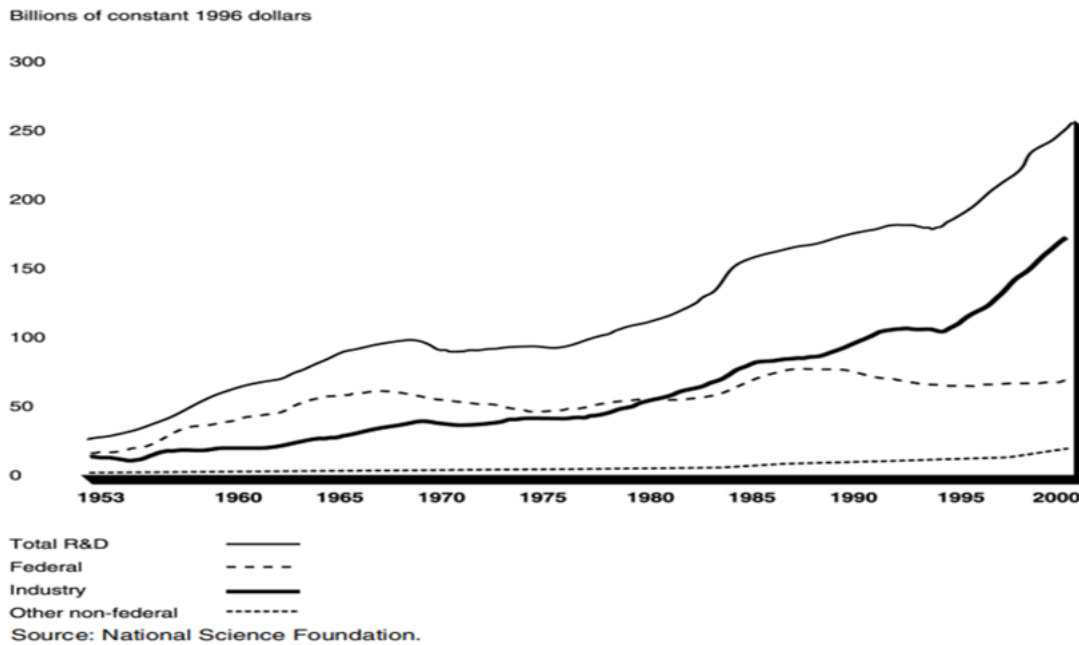


Figure 3. Trends in R&D Funding. Source: Brock, Jr. (2020)

Testimony in the report further concludes,

Commercial contractors often have a variety of reasons for not wanting to contract with the Government, including concerns over profitability, capacity, accounting and administrative requirements, and opportunity costs. Findings concluded the following three major issues:

First, within the commercial sector, companies identified a number of specific intellectual property concerns that affected their willingness to contract with the Government. These included perceived poor definitions of what technical data is needed by the Government, issues with the Government's ability to protect proprietary data adequately, and unwillingness on the part of Government officials to exercise the flexibilities available to them concerning intellectual property rights. We believe some of these concerns were based more on perception than experience, but, according to company officials, they nevertheless

influenced decisions not to seek contracts or to collaborate with federal Government entities.

Second, agency officials shared many of these concerns. Poor upfront planning and limited experience/expertise among the federal contracting workforce were cited as impediments to contracting for intellectual property rights. However, while agency officials indicated that problems related to intellectual property rights may have limited access to particular companies, they did not raise or cite specific instances where the agency was unable to acquire needed technology.

Third, there was general agreement among agency officials that improved training and awareness as to the flexibility already in place as well as a better definition of data needs on individual contracts would generally improve the situation.

This research indicates many outside companies have been contracted to perform independent audits of Government agencies regarding the contracting of small business concerns. Small business utilization for R&D procurement is vital to the success of Government missions and the overall economy. Unfortunately, when small business is underutilized and they have concerns surrounding IP rights, it poses great risk to the Government and the contractor (Brock Jr., 2002)

One audit of the USPTO was conducted by Booth Management Consulting, LLC.

This audit report recommended that the

Under Secretary of Commerce for Intellectual Property and Director of the U.S. Patent and Trademark Office direct the Director of the Office of Procurement to ensure that the following occur:

1. Contract specialists verify small business eligibility prior to awarding small business contracts.
2. Contract specialists verify small business eligibility prior to awarding small business contracts.
3. Contract specialists perform and appropriately document small business set-aside reviews.
4. Historically Underutilized Business Zones small business consideration is included in its annual acquisition forecasting activities and marketing efforts to maximize contracting opportunities; and,
5. The Office of Procurement uses the Forecasting and Advanced Acquisition Planning System and establishes clear lines of communication between the Office of Procurement, small business specialists, and contracting specialists for all procurement requests” (Meny Jr., 2020).

The report also indicates USPTO is not meeting small business contract award goals as indicated in Table 3.

Table 3. USPTO’s Small Business Goal Achievements for FYs 2017 and 2018. Source: Meny Jr. (2020).

	FY 2017	FY 2018
Available Small Business Dollar Amount	\$461,229,013	\$852,953,698
Small Business Utilization Dollar Goal	\$249,063,667	\$417,947,312
USPTO Reported Achieved Dollar Amount	\$248,701,414	\$410,529,036
Ineligible SBC Contract Dollar Amount (based on a judgmental sample of 67 procurement files)	\$32,628,721	\$45,335,359
Adjusted Achieved Dollar Amount	\$216,072,692	\$365,193,676
Percentage of Small Business Goals Met	87%	87%

Source: FPDS-NG database -USPTO’s contracting actions as of 10-22-2018.

Small businesses being excluded from fair and open competition for awards in addition to their concerns about IP data rights hinder their ability to obtain the latest technologies from the onset.

Furthermore, many contractors, especially small business entities, face a plethora of challenges when it comes to understanding the convoluted legalities of the Government’s request for data rights in acquisitions. This has become an industry wide issue according to Briefing Paper Issue 18–8 JULY 2018, written by W. Jay DeVecchio. The paper specifically points out contractor frustrations and areas of confusion when it comes to data rights. It states that

Rights in technical data and computer software are increasingly a topic of dispute between contractors and the Government, particularly the Department of Defense (DOD). This is because of three forces:

1. Congressional and DOD initiatives to acquire rights in data and software sufficient to implement DOD’s modular open systems approach (MOSA), which is intended to allow DOD to swap one supplier’s subsystems with another’s;
2. Independent, overreaching actions by DOD contracting activities to acquire operation, maintenance, installation, and training (OMIT) data they claim to need for long-term support; and,
3. The escalating practice of agencies seeking priced options from contractors to relinquish data rights in exchange for more favorable best value evaluations, which is an attempt to end run the statutory prohibition of 10 U.S.C.A. § 2320(a)(2)(H) against requiring

contractors “as a condition of being responsive to a solicitation or as a condition for award, to sell or otherwise relinquish to the Government any rights in technical data related to items, components, or processes developed at private expense.”

4. All of this means contractors need to understand clearly how the data rights clauses in the Federal Acquisition Regulation (FAR) (applicable to civilian agencies) and the Defense FAR Supplement (DFARS) (applicable to defense agencies) actually work, rather than how they commonly are misunderstood to operate. (DeVecchio, 2018)

This chapter reiterates the need for ongoing and continuous deep dives into Government requirements for data rights. Having outside consulting firms assist with independent research can promulgate new and continuous issues to the forefront, drive positive changes for contractors, and allow the Government to continue essential mission support.

There are multiple opportunities for the DOD to engage in a fair and open competition during the life cycle of an acquisition. It is often easier for the DOD to embrace all interested vendors during the early stages of an acquisition cycle. However, fair and open competition can sometimes become more complex as the acquisition life cycle becomes more mature. Narrowing the vendor pool could possibly exclude small businesses from the competitive market altogether. An acquisition may become even more complicated, creating a vendor-lock situation if an existing contract is expiring soon and is up for re-acquisition. With a single source vendor lock-in situation, the DOD may not only incur cost and schedule overruns but potentially stifle growth and innovation especially among small business enterprises in addition to creating new entry barriers. In a 2014 report, *Gaining Leverage over Vendor Lock to Improve Acquisition Performance and Cost Efficiencies*, Virginia L. Wydler refers to a 2012 GAO report that assessed defense acquisitions of weapons system, revealing that the average cost and schedule growth increased by a factor of 38% and 27 months from the originally estimates respectively with single source vendors (Wydler, 2014). Wydler emphasizes on the significance of fair and open competition in the economic and technological upside of any given marketplace and highlights the savings that a program with continuous competition could benefit from. The

report further explores various options that DOD should consider to eliminate or mitigate the potential risks of vendor lock-in situations.

In the report, Wydler suggests the following considerations for avoiding vendor lock-in situations prior to awarding the contract:

Assess all proprietary rights of the proposal and negotiate the best data rights;

Maintain a competitive environment for the award by considering multi-sourcing;

Analyze the investments in the technology and explore realignment of specifications;

Control the quantity required instead of blankly accepting the vendor's offer; and,

Carefully evaluate the testing and evaluation strategies that are in place governing the specific requirement (Wydler, 2014).

Furthermore, Wydler suggests the following considerations for minimizing vendor lock-in situations prior to awarding the contract:

Revisit the requirements' specific acquisition approach by developing a common ground across various product lines;

Establish a forum where DOD, industry, and academia can come together and discourse concerns in a concerted atmosphere;

Evaluate specifications and make the best effort to create "commonality" among various product lines; and,

Directly manage the subcontractors, suppliers, and actively participate in vendor make-or-buy decisions in accordance with the Federal Acquisition Regulation (Wydler, 2014).

The complexity in rights and licensures for IP can create numerous vendor lock-in situations for the DOD, in turn creating barriers for new entrants and small businesses. The report's suggestions for consideration are not only vital to saving taxpayer dollars, but also for innovation and forward movement in economic growth and development.

The take-away regarding vendor lock-is that, when the DOD is developing contracts for future requirements, it should maintain maximum flexibility while writing contract terms to maximize efficiencies and alleviate issues that arise as a result of rigid rules, guidelines, and constraints in traditional contract language. In addition, strategically planning for the future and the end of a contract is paramount for vendors, especially thoroughly pre-planning before bidding on a Government contract that requires data rights.

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V. CONCLUSIONS AND RECOMMENDATIONS

A. SYNOPSIS

In this chapter, we will provide our conclusions based on our review of various literature and also answer our primary and secondary research questions. We will go further into some recommendations and areas of future research that could support and improve future DOD acquisitions with small businesses as they pertain to intellectual property in software data.

B. CONCLUSIONS

1. **Conclusion 1: DOD Policies and Procedures are Disadvantageous to Small Business**

Current DOD acquisition policies and procedures do not work in favor of small businesses that seek to protect their intellectual property rights. The Government relies heavily on small and large businesses alike to support its major weapons systems programs. The main concerns identified were the lack of training and education for DOD contracting professionals when it comes to formulating smart, efficient, and fair contracts involving intellectual property. Additionally, there are numerous rigid rules set forth in the FAR and DFARS that deter vendor participation in the proposal process and create fear of data rights loss as well as profit forfeiture especially among small business enterprises.

2. **Conclusion 2: Small Business Perceives DOD Defective Planning and Negotiation as a Significant Risk**

The current acquisition climate indicates that commercial vendors, especially small business entities, consider DOD's lack of effective planning and track record of subpar negotiating of intellectual property protections during the acquisition process a significant risk while engaging in business with the DOD. Many small businesses rely on Government contracts to sustain their business. However, confidence is waning throughout industry in the DOD's ability to structure contracts in a manner that protects their proprietary interests in intellectual property rights. Research indicates that contract language is often vague and

acquisition professionals lack the proper knowledge to successfully negotiate appropriate terms and conditions that benefit all concerned parties.

3. Conclusion 3: DOD Perceived as Defective in Resolving Vendor Lock-In Issues

The DOD is perceived to be inefficient in alleviating current vendor lock-in issues. Current established license language is limited, not flexible, and can be too expensive for the parties involved. Research indicates DOD acquisition professionals can take extra steps throughout the life cycle of the contract, but the lack of knowledge and training on the individual micro level exacerbates vendor lock-in issues on the macro level.

C. RECOMMENDATIONS

1. Recommendation 1: NPS IP Education

The Naval Postgraduate School (NPS) is an indispensable and valuable resource available to the DOD acquisition workforce. NPS should refine training and education in contract management with an emphasis on intellectual property rights and how they pertain to small business enterprises. DOD IP needs are constantly changing due to rapid changes in innovations, technology, and national security strategies. Being mindful of the rapidly changing acquisition needs in response to the rapid innovation changes, NPS should build its training and education while utilizing agile acquisition strategies that are forward looking into the future of acquisition.

2. Recommendation 2: Enhanced Continuing Training of Acquisition Personnel Regarding Developments in Technology and Industrial Innovation

DOD relies heavily on commercial IT development and software to maintain adequate warfighting capabilities with its most sophisticated weapons systems, thus requiring software that is consistently provided by the private sector. With state-of-the-art space capabilities requirements, DOD contracting trends are leaning more and more than ever before towards the use of major intellectual property for weapons systems maintenance. The competencies of the DOD acquisition workforce is in dire need to shift gears by gleaning more knowledge in eliminating rigid rules and guidelines, and learning

how to be innovative, especially when it comes to data rights. In addition, contracting professionals need to gain a better understanding of small business considerations as opposed to established large business contractors. As discussed in Conclusion 2, industry perceives that, contracting personnel are not well equipped and do not have specific knowledge to provide a proper contract package that addresses small business intellectual property concerns.

DOD should actively provide its acquisition workforce an all-inclusive training and education utilizing NPS and other training initiatives that keep up-to-date with industry innovation, fair and open competition, and technological advances. DOD should enable and encourage its acquisition workforce to seek ample training especially in the IP arena and provide a platform for open communication for any backlogs in knowledge any time during the acquisition cycle. DOD should collect and analyze feedback from the acquisition workforce annually in order to help determine and snap shot the level of knowledge among the stakeholders in each acquisition field.

3. Recommendation 3: Acquisition Personnel Should Implement Policies and Procedures to Alleviate Vendor Lock-In

DOD contracting professionals should consider the open system architecture as discussed in Chapter IV to help alleviate vendor lock-in when negotiating the terms of a contract involving intellectual property and small businesses.

Contracting professionals should work closely with program managers to provide equal opportunities for small businesses by utilizing the OSA framework designed to reduce costs and risks associated with procuring intellectual property for major weapons systems. This research revealed that the Government Industry Advisory Panel suggests implementation of changes in order to ensure that contracts are structured in the best interest of all parties (Government 813 Panel, 2018). DOD should deploy and employ agile policy directives and initiatives addressing prevalent concerns surrounding IP acquisition geared towards reducing associated risks.

D. REVIEW OF RESEARCH QUESTIONS

1. Primary Research Question

How effective are the current DOD software data rights and acquisition policies? Despite the changes in policy initiatives and directives surrounding intellectual property rights and acquisition by DOD, the current DOD software data rights and acquisition policies are not effective in providing an environment of fair and equal competition.

2. Secondary Research Question

Do the current DOD software rights policies hinder or discourage small business enterprises from engaging in business with the DOD? The current software intellectual property rights policies serve as a barrier to small businesses and discourage them from engaging in business with the DOD.

E. AREAS FOR FUTURE RESEARCH

In this section, we provide a few areas of future research that could provide more definitive conclusions and swift solutions to existing bottlenecks and issues in intellectual property rights pertaining to small businesses.

- There are numerous articles on the changes in policy directives through the last few decades, but there is no research available on the correlation of the rate at which innovation and acquisition needs are changing and whether IP policies are changes and updates are keeping up with that rate.
- There is no research available on an aggregate study of small business grievance and applicable disputes and how that relates to risk (monetary loss and cost or schedule overruns).

F. FINAL THOUGHTS.

Government contracting personnel are tasked with great responsibilities. They are charged with being good stewards of the taxpayers' money. The current climate within DOD indicates acquisition professionals take a risk adverse approach while writing

contracts that require intellectual property. To mitigate unforeseen circumstances and to prepare for contingencies, the Government's default stance seems to be to obtain Unlimited Rights when possible. Understanding this mindset, the private sector takes a protective approach by providing restrictive rights to capitalize on their investments. To avoid a stalemate when negotiating IP rights, especially with small business entities that may lack funding, and resources, a win-win approach would be beneficial when both sides come to the table.

As the world of intellectual property evolves at lightning speed, contracting personnel need to hone their skills and knowledge surrounding the acquisition of IP. By doing so, it could alleviate small business apprehension about doing business with the Government if small businesses see the potential to make a profit, provide a quality product, and have the ability to retain appropriate data rights when deemed necessary.

The private sector is advancing rapidly with cutting-edge technology and software, thus it is in the Government's best interest to provide maximum incentives to small businesses where practicable. While DOD appears to understand industry concerns to a degree, it allows acquisition professionals the leeway and discretion to be flexible when it comes to negotiating contractual IP data rights. Unfortunately, there is a communication gap when it comes to preventing vendor lock-in and current contracting practices. Therefore, the need throughout DOD is for a comprehensive intellectual property training program for contracting personnel. In addition, personnel need to feel supported in their decision-making processes to provide flexible options, optimize returns, and minimize risk for both sides

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