# INTELLECTUAL PROPERTY RIGHTS
# CROSS FUNCTIONAL TEAM

## FINAL REPORT

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This is the final report of the Intellectual Property Rights Cross Functional Team ("CFT") chartered by the Under Secretary of the Air Force in February 2018. This report provides recommendations, observations and conclusions concerning IP acquisition strategies, techniques, policy, and resources relating to noncommercial technical data and computer software. This final report is not intended to be an exhaustive survey of intellectual property or data rights acquisition; indeed, it does not *per se* address patent, copyright, or trade secrets, in part because these generally are far less problematic in acquisitions. Rather, this final report is an action-oriented overview of how to improve technical data and computer software management.

The report contains seven recommendations and enabling actions to make improved outcomes more likely. In some areas, senior leader engagement with stakeholders outside of the Air Force will be necessary. This is because most problems the Intellectual Property CFT observed were not confined to one isolated transaction, but were traceable to rules, policies, and incentives that have created a restricted competitive environment and contractor "vendor lock" in Air Force programs.

A guidebook intended to assist acquisition personnel is included with the report. The guidebook has been the Intellectual Property CFT's primary effort for the past 12 months. In creating the guidebook, the IP CFT has begun to collect best practices for acquiring intellectual property, particularly with regard to technical data and computer software. Unlike other intellectual property materials published by the Department of Defense, the guidebook is written as a "playbook" to provide practical planning and responsive best practices for common issues faced by Air Force personnel in acquiring intellectual property from contractors. The guidebook is the collective work of Air Force intellectual property subject matter experts with varied backgrounds and disciplines.

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## RECOMMENDATIONS

- **Recommendation 1:** Build flexibility into contracts for major weapon system acquisitions to address changes in technical data and compute software needs over the life cycle.

If experience has taught anything, it is that defense acquisition must be resilient to change. Overly optimistic assumptions in the early stages of the life cycle rarely yield the cost and performance advantages promised. Technology also becomes quickly obsolete and must be refreshed with regular, and not always predictable, cadences. It is important for Air Force programs to recognize and plan for the certainty of change. And part of ensuring flexibility is to contract for technical data and computer software in ways that it can be obtained or accessed when needed. In doing so, it is important to keep in mind that the government can only order technical data and computer software that meets its minimum, anticipated needs, and in most cases cannot force contractors to relinquish rights to privately funded technologies. The best time to strike this bargain is early in the life cycle when the government's significant, up-front investment can be leveraged. We recommend the following enablers for adopting this recommendation in Air Force acquisitions:

**Enabler 1**: Understand upfront the intellectual property rights that may be needed for the life cycle of the program. Engage in life cycle sustainment planning at the requirements definition phase (*i.e.*, during Capability Development Document formulation) and invite a broad, cross-section of industry into pre-acquisition discussions, so that life cycle sustainment requirements reflect a broad range of considerations in view of the government's desire for flexibility.

**Enabler 2**: Recognize the power of competition: to the extent possible, use competition among offerors to obtain contractor commitments that will provide the program with meaningful options over time as circumstances change. In addition, develop innovative contracting approaches for leveraging the government's technology investments beyond the initial contract award.

**Enabler 3:** Build in latitude to address changes in warfighter sustainment needs over the life cycle of major weapon systems when acquiring technical data and computer software license rights.

**Enabler 4:** Consistent with 10 USC §2320 and DFARS §252.227-7026 and §252.227-7026-7027, include deferred ordering and deferred delivery clauses in major weapon system contracts to the maximum extent practicable.

**Enabler 5:** Create contract incentives (*e.g.*, structured milestone payments, profit guidelines, and performance evaluation criteria) for contractors to provide required technical

data, computer software, and associated intellectual property rights over the course of the life cycle.

**Enabler 6**: Keep in mind that not all technical data and computer software and associated intellectual property rights may be required up front, and differentiate between deliverable and licenses required immediately from those needed for the modernization and sustainment phases of the life cycle. Affording contractors some degree of flexibility when possible may result in lower intellectual property costs.

**- Recommendation 2:** Develop a rigorous, standardized process for determining technical data and computer software needs to reduce variability in sustainment approaches, requirements determinations, and acquisition strategies.

No two acquisitions are identical. Major weapon systems have different operational, modernization, and sustainment needs across their life cycle, and as such, their technical data and computer software requirements will not be the same. But the process for determining these requirements and developing intellectual property acquisition plans and sustainment approaches should be early, repeatable, and consistent across the enterprise. Often, sustainment decisions are deferred until later in the life cycle when more is known but when leverage to obtain intellectual property rights from a contractor has fatally diminished. Failing to establish these objectives early limits life cycle flexibility. Air Force acquisition personnel recognize this risk, and they sometimes overreach by including broad or poorly defined requirements in an effort to buy themselves flexibility until more facts are known. Instilling some systemic flexibility per Recommendation 1 will alleviate some pressure in this regard. So will standardizing approaches and providing pre-packaged solutions that can be tailored to fit the unique circumstances of any particular acquisition.

For example, several approaches to software maintenance can be adopted in an acquisition. Each approach can be related to an appropriate acquisition strategy and distilled into standard contract language and requirements for deliverables that can be tailored according to the unique attributes of an acquisition. Such an approach could save valuable resources at the program level, make for more consistent outcomes, and be shared with industry at regular intervals to ensure acquisition plans are informed by market realities and not just hopeful assumptions. We recommend the following enablers for adopting this recommendation in Air Force acquisitions:

**Enabler 1:** Build from the RAND Study framework for life cycle sustainment decisions to develop a limited list of potential sustainment approaches for each type of major system the Air Force is likely to procure.

**Enabler 2:** Develop pre-packaged solutions and template for analyzing and assessing requirements for technical data and computer software, along with implementing acquisition and contract strategies and templates to implement each sustainment approach.

**Enabler 3:** Standardize the technical data and computer software requirements determination process, such as that described in the outdated DOD 5010.12-M guidance, to tailor these pre-packaged solutions for individual programs.

**Enabler 4**: Engage in regular industry exchanges to collaborate on sustainment models and related requirements, and brief the results of these exchanges at formal acquisition reviews.

**- Recommendation 3:** Ensure that life cycle expectations and requirements are clear in Air Force solicitations and contracts, particularly with regard to operation, maintenance, installation, and training (OMIT) data, and apply those requirements consistently.

According to the Institute for Defense Analysis, contractors often aggressively price the development phase of an acquisition program, with the expectation that they will "franchise" the major weapon system and control support and subsequent development for the life cycle (*i.e.*, "vendor lock"), eventually more than recovering any developmental losses. Of course, this is a questionable business model. Defense acquisition has shown over and over again that the future of a program is not guaranteed. Budgets change, threats change, and technologies change; all of which means a life cycle opportunity is not guaranteed. This practice thus creates undue risk for contractors and complicates future planning. It also is in tension with procurement principles related to buy-in, competition, and modular contracting for capital asset acquisitions.

To remedy these effects and counter this practice, it is important to make life cycle expectations clear in Air Force solicitations and contracts. Program officials must ensure these contracts have clear requirements that flow from these expectations, especially with regard to OMIT and form, fit, and function data, and contain clearly drafted, binding obligations concerning intellectual property rights, deliverables, and deferred ordering. Then program officials must follow through and enforce these requirements and obligations consistently, throughout the initial contract and the ones that follow. Where program officials can establish contract incentives for encouraging greater cooperation from contractors when it comes to furthering and supporting these expectations, it would be all the better to do so. As such, we recommend the following enablers for adopting this recommendation:

**Enabler 1:** Obtain contract commitments in the development phases of the life cycle to support Air Force objectives for system sustainment and support.

**Enabler 2:** Adequately and consistently define regulatory concepts like form, fit, and function data, "data necessary for operations, maintenance, installation, and training," and terms

such as “software maintenance” in Air Force contracts, leveraging commercial standards where practicable.

**Enabler 3:** Develop source selection evaluation criteria and related contract requirements that encourage offerors to provide complete and accurate technical data packages, computer software, and associated intellectual property rights to meet life cycle needs.

**Enabler 4**: Understand and maintain the distinction between government technical data and computer software deliverables and the level of rights licenses the government needs in those deliverables. For example, determine whether delivery of source code for non-commercial computer software developed at government expense is absolutely necessary for system maintenance, or whether merely executable code will suffice to meet the government’s needs. If source code is necessary, ensure a binding delivery obligation is included in the contract.

**Enabler 5**: Strictly enforce technical data and computer software (and associated intellectual property rights) delivery obligations and marking requirements in contracts, and consistently hold contractors accountable for their performance and the performance of subcontractors and suppliers.

- **Recommendation 4:** Recalibrate contract incentives and simplify acquisition and contracting practices.

Under the current DFARS rules for acquiring technical data and computer software, contractors have very little incentive to refrain from over-marking deliverables, to be forthcoming with funding information, or to assist the government in obtaining technical data and computer software with adequate rights to support life cycle goals. The rules--the primary purpose of which are to grant rights to the government and protect proprietary interests of contractors--tilt too heavily towards the latter at the expense of the former. The following recommendations are made to tilt the balance back towards equilibrium. *Implementing them will require government support outside of the Air Force, and, when making them, we expect resistance. Still, these changes are sensible, would have long-reaching, positive effects on defense acquisition, and, as such, need to be made.*

We recommend the following enablers for adopting this recommendation in Air Force acquisitions:

**Enabler 1:** Clarify the rules so that government payment for intellectual property rights in technical data or computer software cannot be separated from the right to delivery of the physical or virtual product in which that right is embodied, regardless of whether the government ultimately requests such delivery within the applicable delivery time frame. Ensure that contract

terms make clear that government payment for rights cannot be separated from contractor obligation to deliver, including prior to completion of rules clarification process.

**Enabler 2:** Redefine the source of funding framework so that the government's contract payments are more determinative of the government rights in technical data and computer software than the contractor's allocation of costs or the contractor's allocation of Federal funds to support "independent" research and development.

**Enabler 3:** Place reasonable limits on the "doctrine of segregability" so as not to erode significant public investments or penalize the Defense Department for reuse.

**- Recommendation 5:** Develop an enterprise-wide process to monitor and track government rights in technical data and computer software during contract administration and life cycle management.

The first four recommendations are made so that acquisition personnel can forge a more reliable bargain. This recommendation is made so they can better track and enforce the bargain struck with contractors.

The source of funding rules in the DFARS are often divorced from the management of defense acquisition contracts. There are no requirements, unlike in the patent rules, for contractors to disclose where government funding is being used and how it is contributing to the product baseline. Nor is there, as in the copyright law, a requirement to ensure adequate licenses are obtained in previously existing works by the contractor so that the government's rights in the end work are not eviscerated by what existed before. At the same time, many abstract intellectual property concepts (*e.g.*, component "interface" data, "software maintenance," and "software segregability") encumber the rules to the extent that contractors have few reliable guides on which to base their markings. So they take a conservative approach to marking data and software and put the burden on the government to challenge them.

The government, meanwhile, often does not have the necessary resources to navigate through the burdensome regulatory process for challenging and removing markings. Current acquisition community reliance on phone calls to intellectual property attorneys or technical subject matter experts provides no effective, scalable relief in this regard; they merely open the door to further factual inquiries Air Force acquisition personnel cannot possibly make themselves. A consistent and dedicated administrative focus required by the intellectual property challenge process is often lacking at the program level. The end result for the enterprise is a steady erosion of rights in favor of the original supplier, regardless of how much federal funding is involved. And when there are disputes, contractors often feel they have an unfettered ability to charge for rights in technical data and software without regard to prior funding contributions or the sensitivity of what is at stake. This tactic can lead to higher prices that offset any savings or

cost efficiencies that the government hopes to gain from obtaining the necessary technical data or computer software.

These are solvable problems, but will require rule changes to the DFARS. Although rule changes, such as making it easier to challenge contractor markings or limiting the time with which the marking will control, would be helpful, the complete solution will require new practices in defense acquisition, contracting, and program management to ensure the Air Force can meet its life cycle objectives by making it easier to enforce the bargains made. We recommend the following enablers:

**Enabler 1:** Make it easier to associate and track the government's actual funding and technical contributions to creation of technical data and computer software with the allocation of rights therein, rather than relying on abstract and poorly defined accounting concepts. Look for opportunities to memorialize government contributions, and maintain records of these for the life cycle.

**Enabler 2:** Ease the burdens with challenging and removing restrictive markings, such as by granting provisional use rights to the government through remedy granting clauses such as a loss of rights when contractors do not sufficiently justify them.

**Enabler 3**: Develop contracting approaches so that prices for technical data and computer software (and associated intellectual property rights) to support life cycle needs will be established competitively and remain fixed, with opportunities for negotiated adjustment, so long as a weapon system is in service.

**- Recommendation 6:** Engage frequently with industry throughout the requirements phase, acquisition planning, and sustainment process to develop an optimal IP strategy and management plan.

In the defense sector, the bulk of the non-commercial research and development costs are financed at government expense. For major weapons system programs, contractors do not require access to capital markets to be able to deliver production-worthy fighting equipment. Rather, the Defense Department provides that capital directly to contractors. In theory, those contributions should provide the flexibility needed to meet the life cycle needs of these systems through the acquisition of government rights in IP. What is more often the reality now, however, is that contractors advance aggressive IP assertions to limit the Air Force to the original source, even though the Air Force has provided the bulk of research and development funding for the weapon system.

On the other hand, the Air Force must recognize that defense contractors rely increasingly on the commercial sector technologies and software not originally developed for military markets. Many commercial companies are wary of doing business with the government

and its contractors due to concerns over protection of their intellectual property. Commercial companies often perceive government data rights requirements as overly invasive (i.e., OMIT and form, fit, and function requirements) and potentially injurious to their business. This perception in turn may handicap a contractor's ability to provide optimal supply chain solutions to the Air Force, or in some cases, preclude contractors from the entering the competition.

For this reason, the Air Force, in developing an IP strategy, should strive to achieve a common understanding with its industry partners through early communications and market research before the request for proposal is issued. The Air Force should engage with industry during the requirements definition phase to assess the benefits of the various sustainment approaches under consideration, and the acquisition community should take an active role in these discussions. The Air Force should also dialogue with industry at the beginning of the acquisition planning process to determine the optimal balance of technical data and computer software rights across the life cycle of the system. The Air Force should fully consider industry feedback, including potential downstream impacts on the supply chain, in developing the acquisition strategy, the request for proposal, and the source selection evaluation methodology. By maintaining a continuous dialogue with industry, defense contractors will more fully understand the Air Force's objectives and expectations behind its technical data and computer software deliverable and licensing requirements in acquisitions. The Air Force also will gain a better appreciation of the potential implications, including impacts to the field of competition and weapon system procurement costs, of alternative approaches to IP deliverables and licensing.

In addition, Defense Department leadership must also engage with industry to help reset overall expectations. The existing expectation that a contractor can lock up the service and support markets for the entire life cycle of a program is unreasonable. The result is that our major weapon systems become too costly and unsustainable over the long term.

We recognize that, in some instances, the government's needs for intellectual property rights are minimal. On occasion, it may be beneficial for an original source to serve as the primary provider of upgrades, modernization, and additional system-level capabilities that require mobilization across several levels of the original supply chain. This may have the benefit of being a lower cost acquisition approach that encourages more frequent upgrades, keeps design teams together, and ensures more vulnerable areas of the industrial base remain healthy.

Incumbent firms already hold a significant advantage over new entrants when it comes to modernizing and improving existing systems. When it comes to the operations and sustainment phases of the life cycle, this is equally true. But in these phases, many more service and parts providers are available to which the Defense Department can turn to obtain lower costs, better availability, and improved life cycle outcomes. By dealing only with the incumbent firm, the Defense Department limits its pricing power and increases the risk of suboptimal outcomes.

Ideally, intellectual property policy should be calibrated and expectations set such that when it comes to operations and sustainment, a broader market participation is not only expected, but also encouraged. In this way, the fruits of federal research and development can be disseminated, the industrial base can be expanded, and more opportunities to innovate for the warfighter can be found. This is what the Defense Department's intellectual property policies and practices should be about. That is not what they are about today. DoD leadership, together with senior leaders in the Air Force and other Services and Agencies, will need to determine first whether the losses experienced in this area justify the exercise of political will and expenditure of time and labor resources to collaborate together and, where appropriate, with industry. If so, then leaders and government subject matter experts will need to engage with industry to establish new norms, new guidelines, and new expectations in this area. We recommend the following enablers for adopting this recommendation in Air Force acquisitions:

**Enabler 1:** Consider industry input in planning and defining weapons system sustainment requirements.

**Enabler 2:** Fully utilize Industry Days, one-on-one meetings, requests for information, and draft requests for proposals to assess the potential benefits and shortcomings of different approaches to acquisition of technical data and computer software rights and associated intellectual property rights, based on more complete understanding of government requirements.

**Enabler 3:** Establish a defined intellectual property strategy as part of the program acquisition strategy. Ensure that the intellectual property acquisition strategy is a fundamental element in drafting the request for proposal.

**Enabler 4**: Ensure that the solicitation clearly communicates Air Force technical data and computer software rights requirements and contains an evaluation methodology that best ensures that offerors are fully responsive to government sustainment needs.

**Enabler 5:** Building from the "real world" examples discussed in the accompanying guidebook, develop senior leader messaging that vendor lock is a disfavored practice that will no longer be tolerated on Air Force programs. Ask senior leaders to include this messaging at every appropriate opportunity in industry dialogue.

**- Recommendation 7:** Establish a permanent cross-functional "SWAT" (Special Weapons and Tactics) team to implement Recommendations 1-6 and to provide "cradle to grave" support to program offices on intellectual property rights matters.

The Air Force has a significant disadvantage over industry in procuring needed intellectual property rights, arising primarily from limited technical intellectual property expertise and a lack of industry experience. Intellectual property is a complex and esoteric subject area, which cannot be mastered simply through additional course instruction. (This is not

to say better and more widely disseminated training on intellectual property matters—including data rights marking training specifically for configuration managers, who may have the best opportunity to work together with industry to ensure submissions are properly marked—should receive lesser priority, because more extensive training is also a long-recognized necessity.) But we strongly believe the Air Force requires a permanent team of experienced acquisition and legal professionals to assist acquisition programs throughout the lifecycle of a major system or other program. Functioning as on-call specialists, the team would provide program offices with resources and experience throughout all phases of the major weapon system lifecycle, including the development of intellectual property requirements, establishment of an intellectual property acquisition strategy, negotiation of appropriate licenses, and disputing contractor data assertions. The cross-functional team would be responsible for maintaining templates, updating intellectual property clauses and policy, and cataloguing best practices. The team can also function as industry ambassadors. It is expected that the team would also cultivate strong relationships with industry to break down barriers and misconceptions about Air Force intellectual property policies and practices.

**Enabler:** Establish a dedicated team of 10 intellectual property professionals to include five attorneys in the General Counsel's Office and five SAF/AQ personnel experienced in intellectual property-related issues in contracting, logistics, and sustainment. The cross-functional team should be assigned to SAF/AQ and located in the National Capital Region. Develop a charter for the team consistent with the recommendations of this Report.

## CONCLUSION

More than ever, intellectual property is critical to Air Force's ability to modernize and sustain its major weapons systems. We must adopt a consistent and thorough approach to defining our requirements for rights in technical data rights and computer software, as well as need for associated deliverables, during each phase of the program lifecycle. We must be transparent in communicating our intellectual property requirements to industry and ensure that our acquisition strategies encourage private investment, promote competitiveness, and attract commercial companies with innovative technologies throughout the supply chain. At the same time, the defense industrial base must come to understand that our intellectual property needs have grown as major weapons systems have become more software-driven. Effective implementation of improved modernization and sustainment requires improved industry-government dialogue, initially at the highest levels to set the stage for a new approach in this area, and then at all action officer levels across the enterprise and beginning early in the requirements and acquisition planning process. As it now stands, intellectual property is a polarizing topic, with each side not fully comprehending the motivations and objectives of the other. We must cultivate a mutually beneficial relationship with industry to preserve our technological advantage over our adversaries in the long term.