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International Acquisition Best Practices

Virginia L. Wydler—Chief Acquisition Scientist at The MITRE Corporation, has over 25 years of experience in contracting. She holds an MS in acquisition management, Naval Postgraduate School, and a BS in business administration, University of Maryland. She is a Certified Professional Contract Manager (CPCM) and Fellow with National Contract Management Association (NCMA). [vwydler@mitre.org]

Erin Schultz—Center for Acquisition Management and Sciences Technical Director at The MITRE Corporation, provides subject matter expertise in the areas of contracting, source selection, proposals, and acquisition strategies for a variety of customers. She has over 25 years of contracting experience with both federal government and industry, specializing in information systems. She has been an instructor for acquisition and contracting courses for several associations, including NCMA. She has taught internal acquisition and source selection courses for The MITRE Institute. [eschultz@mitre.org]

Kelly Hough—Acquisition Strategy and Management Department Head at The MITRE Corporation, provides acquisition and contracting expertise for federal government sponsors. She is a former Contracting Officer and North Atlantic Treaty Organization (NATO) PM, and a Certified Acquisition Professional with more than 20 years of experience in executing U.S. Defense domestic and international acquisition programs. [khough@mitre.org]

Acknowledgements

The MITRE Corporation Contributing Authors:

Carla Brown

Jim Bui

Eugene Cullen

TJ Restivo

Josh Semat

Executive Summary

United States (U.S.) program offices need help implementing complex international acquisitions, as their missions expand into the global use of U.S. defense weapons. This research documents best practices that will allow federal program managers (PMs) to implement international acquisition strategies that fit their situation on the acquisition lifecycle spectrum. The research reflects a comparison of international acquisition best practices by U.S. agencies, foreign entities, and commercial industry for military systems and space exploration that program managers can adopt to advance international acquisition strategies.

Background

National defense has become a global business as United States (U.S.) national interests are closely intertwined with those of the rest of the world. Globalization has driven the U.S. to seek opportunities to collaborate with U.S. allies and partner nations, which creates increasingly complex procurement strategies. The U.S. continues to balance national concerns with partner desires. To support global interest in U.S. products, the Department of Defense (DoD) sells military capabilities to coalition partners through Foreign Military Sales (FMS) under the Federal Acquisition Regulation (FAR) and executed in accordance with rigorous and complex U.S. regulations. Conversely, U.S. industry is also permitted to sell military capabilities directly to foreign governments under the Direct Commercial Sales (DCS), following rules for export control set by the Department of State,

Department of Commerce, and other federal agencies. These two processes create a dynamic environment for program managers (PM).

International Acquisition Issues

According to a February 2019 General Accounting Office (GAO) report, the DoD received 3,038 FMS-related requests "in fiscal years 2014 through 2018 from 93 countries across 6 geographic regions." FMS and DCS have their own unique set of procurement rules, especially dealing with export control, international coalitions, and foreign governments. A significant number of key players are involved in the FMS and DCS approval processes. This mix of entities and differing procurement rules can be viewed by foreign partners as protracted and cumbersome.

Space exploration in the U.S. is shifting from an era of government control to that of multi-national coalitions and commercial investments. Commercial space ventures have increased, with Space-X, Blue Orbit, and other private companies investing in space travel. At the same time, the National Security Council has directed the National Aeronautics and Space Administration (NASA) to execute a new lunar mission. When established in 1958, NASA was directed to pursue cooperation "with other nations and groups of nations." This principle of international cooperation is still important today. Such collaboration will be essential in addressing the inherently global and interrelated space race (NASA, 2014).

Spurred by U.S. coalition partners and U.S. industry, the current administration has shown a renewed interest in adjusting the arms transfer policy. The White House is driving a review of the acquisition and contracting processes used to execute arms transfers under the Conventional Arms Transfer Policy, released on April 9, 2018. There has been dramatic growth in the level and dollar value of U.S. arms exports, and changes in the world market. To execute arms transfers reliably, PMs need to understand rules governing arms exports and their impacts and need a thorough understanding of the overall acquisition and contracting process.

Global Influences—Arms Transfers

The Center for Strategic International Studies (CSIS) hosted a forum on August 8, 2018, titled "U.S. Arms Transfer Policy: Shaping the Way Ahead." The forum chair, Andrew Philip Hunter, stated that change is afoot in the world of U.S. arms transfers. He stated that

> our arms exports and security cooperation more generally are a major focus of the strategy, both in the National Security Strategy and in the National Defense Strategy. And no doubt related to that there's a huge leadership focus on it … that is unparalleled in the last year and a half. (Hunter, 2018)

Ambassador Tina Kaiako, Acting Assistant Secretary of State for Political-Military Affairs, U.S. Department of State (DOS), reported that a major new policy, which updated the previous CAT policy from 2018, is designed to (1) shift from a reactive to a proactive approach to CAT to boost the U.S. defense industrial base, (2) secure resources to execute the shift in approach; and (3) develop a broad engagement plan with U.S. stakeholders including Congress, etc. A CAT Implementation Plan (with classified sections) was promulgated July 13, 2018.

Laura Cressey, Deputy Director, Office of Regional Security and Arms Transfers, U.S. DOS, addressed the need to decrease (FMS) cycle time. She stated,

> We want to increase US competitiveness by building in exportability. … It takes 300+ days for major FMS acquisition execution. DoD is overwhelmed

> with missions and FMS has become a 3rd priority. That is an opportunity potentially with the administration to look at carving out, with the Congress' support, unique federal acquisition regulation procedures for FMS contracting to have a truly rapid process. That's going to take whole-of-community support, and we at the chamber are willing to help with that. (Cressey, 2018)

Based on the issues raised in the CSIS forum, U.S. agencies should review the acquisition and contracting processes used to execute the transfers. Now, more than ever, it is critical to reduce cycle times and improve the quality of the acquisition process.

Foreign Military Sales Contracting

The sale of U.S. weapons and military systems to foreign governments is complex, and, for a major weapon system sale, the process could last for many years. The U.S. infrastructure supporting FMS does not represent a stand-alone arrangement, but instead utilizes the existing DoD acquisition structure. The diverse laws, regulations, policies, and guidance that govern U.S. procurements also govern international acquisition, with some exceptions.

Defense FMS Policy, Regulation, and Guidance

Under the Foreign Assistance Act (FAA) and the Arms Export Control Act (AECA), and in accordance with Executive Order 13637, the Secretary of State is responsible for the supervision and oversight of Security Assistance (SA) programs. SA refers to the collection of programs authorized under Title 22 U.S. Code (U.S.C) wherein the U.S. provides defense articles, military education and training, and other defense-related services to foreign nations by grant, loan, credit, cash sales, or lease, in furtherance of national policies and objectives.

Security Cooperation (SC) comprises all activities undertaken by the DoD with foreign defense security establishments, including all DoD-administered SA programs. Title 10 U.S.C. Section 301 defines security cooperation programs and activities of the DoD as "any program or interaction of DoD with the security establishment of a foreign country to build capabilities, to provide access or to build relationships." The DoD administers many of these FAA- and AECA-authorized security assistance programs using the *Security Assistance Management Manual* (SAMM).

The FAR does not make specific references to FMS, since FMS is a Defense Department function to control the procurement of weapons from industry to sell to foreign governments. However, the FAR does provide an exception to full and open competition under FAR 6.302-4, International Agreement.

The Defense Federal Acquisition Regulation Supplement (DFARS), Subpart 225.73, Acquisitions for FMS, provides policies and procedures for the acquisition of FMS, and authorizes the DoD to enter into contracts for resale to foreign countries or international organizations. All the Military Departments (MILDEPs) have issued further supplements to the DFARS to aid contracting personnel in implementing FAR and DFARS provisions.

The DoD does not maintain a separate acquisition infrastructure for FMS; instead, the DoD supports FMS utilizing the pre-existing infrastructure established to support U.S. acquisition and logistics needs. The DoD Instructions 5000 series, which provides mandatory policies and procedures for all Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs, requires acquisition managers to pursue international cooperation in acquisition to the maximum extent feasible,

and consistent with core business practices and the overall political, economic, technological, and national security goals of the U.S.

The Defense Institute of Security Assistance Management (DISAM) publication, *The Management of Security Cooperation*, commonly referred to as the "green book" due to its green cover, covers the full range of security cooperation activities and is the basic textbook employed by the Defense Institute of Security Cooperation Studies. It is considered the authoritative source for FMS guidance. DISAM, Chapter 1, states that the FMS program is a non-appropriated program administered by the Defense Security Cooperation Agency (DSCA), through which eligible foreign governments purchase defense articles, services, and training from the government. The purchasing government pays costs associated with the sale.

The Letter of Acceptance (LOA) is commonly referred to as a "case" and is assigned a unique case identifier for accounting purposes (Defense Institute of Security Cooperation Agency, 2018, Chapter 1). The LOA is a bilateral agreement whereby the U.S. commits to provide the approved goods or services and the foreign government agrees to the terms, conditions, and payment schedule. The U.S. agreement is caveated as "best effort," meaning the U.S. cannot be considered in default of the agreement if product performance levels will not be achieved. Pursuant to LOA, the U.S. initiates the acquisition process and awards a contract on behalf of the foreign government. The U.S. executes the acquisition of behalf of the foreign entity. The FMS party indemnifies the U.S. and agrees to absorb all financial risk.

Acquisition Planning

The FMS Case process is executed in three phases—Pre-Case Development, Case Development, and Case Execution. The primary planning activities fall into pre-case development and case development. The pre-case development phase can go indefinitely as the parties discuss national requirements, sources, affordability, as well as potential political implications and an assessment of available U.S. technologies. The U.S. does not start tracking the contract execution timeline until a requirement transitions to the case development phase, which commences with the receipt of a Letter of Request. During this phase, the U.S. issues a formal offer in the form of an LOA, which documents the terms of agreement between the U.S. and a foreign government. This phase concludes with the countersignature of the LOA and the initial deposit to Defense Finance and Accounting Services.

DISAM Chapter 5 (Defense Institute of Security Cooperation Agency, 2018, p. 5-2) provides a detailed look at the FMS Case process. It depicts a very long process from the time the LOA is requested to acceptance of the LOA, which is typically at least 250 days. This timeline assumes that every milestone or activity executes as expected and does not consider the pre-case development time.

The FMS process can apply to both competitive and directed source acquisitions. If a foreign country states in official written direction, such as an LOA, that the contract (or subcontract(s)) is to be awarded to a specific firm, the procuring office must process a written justification and approval as described in FAR 6.303 and 6.304, along with applicable DFARS regulations and any service-specific or local instructions. Other than this provision for a foreign customer directing award of the contract and/or subcontract(s) to a specific firm, agencies meet FMS requirements in accordance with the "normal" acquisition process as prescribed in the FAR, DFARS, Service-specific regulations, and any local instructions.

Standard FMS funds provided by the acquiring nation are not constrained by fiscal year (FY) limitations and do not expire with the end of the FY. Conversely, U.S. foreign

military funding (FMF) does expire and must be obligated prior to the end of that FY. This funding is typically not available to the procuring agency until the third or fourth quarter of a FY.

On June 28, 2018, the DoD issued a Class Deviation effective immediately that stated that when determining contract type for FMS procurements, contracting officers shall comply with Section 830 of the National Defense Authorization Act (NDAA) for FY 2017. The policy expressed in the DoD procurement memorandum dated June 28, 2018, *Negotiations of Sole Source Major Systems for U.S. and U.S./FMS Combined Procurements*, and the guidance provided at DFARS Procedures, Guidance and Information (PGI) 216.403-l(l)(ii)(B). This new policy states that contracting officers shall use firm fixed price (FFP) contracts for FMS unless one of the following exemptions applies:

- The FMS customer has established, in writing, a preference for a different contract type, or has requested, in writing, that a different contract type be used for a specific FMS.
- The contracting officer requests a waiver on a case-by-case basis when a contract type other than FFP is in the best interests of the U.S. and American taxpayers.

The determination of best interest must be made on a case-by-case basis and be approved by the Chief of the Contracting Office.

Negotiations and Award

Although the FMS host nation is the final customer, it is not a party involved in the contract negotiations and final award. The U.S. is the legal entity with which the country has contracted. DFARS 225.73 encourages FMS customer participation in discussions with industry regarding development of technical specifications, establishment of delivery schedules, special warranty provisions, varying alternatives, quantities, and options needed to make price-performance tradeoffs. Restrictions regarding foreign national participation in negotiations apply if:

- The contract includes requirements for more than one FMS customer.
- The contract includes unique U.S. requirements.
- Contractor proprietary data is a subject of negotiations.

DFARS 225.7304(c) states that no proprietary data, including cost or pricing data, can be released to the FMS customer unless the contractor has authorized it. Further, DFARS 225.7304(d) states that customer participation in contract negotiations is left to the discretion of the contracting officer after consultation with the contractor. In FMS situations, contractors may be less willing to provide enough insight into the basis of estimate for their proposed technical approach or costs, given that they know there is no competition and not all technical and cost information will be shared with the end customer.

Offset Agreements

One aspect of FMS contracting that does differ from any other contracting efforts is “offsets.” Whereas offset arrangements are a typical element of many international procurements, the DoD does not encourage, enter into, or commit U.S. firms to FMS offset arrangements. From an FMS perspective, the decision to engage in offsets, and the responsibility for negotiating and implementing offset arrangements, resides with the companies involved.

DFARS 225.7303-2(a)(3) defines an offset agreement as the contractual arrangement between the FMS customer and the U.S. defense contractor that identifies the offset obligation imposed by the FMS customer that has been accepted by the U.S. defense

contractor as a condition of the FMS customer's purchase. These agreements are independent of the LOA and FMS contract. DFARS 225.7303-2 provides insight as to both direct and indirect offsets:

- A direct offset involves benefits, including supplies or services, that are directly related to the item being purchased.
- An indirect offset involves benefits, including supplies or services, that are unrelated to the item being purchased.

Table 1 provides the most common types of direct, direct/indirect and indirect offsets.

Table 1. Offset Categories

Direct	Direct/Indirect	Indirect
Co-Production Subcontracts	Technology transfer Training Licensed Production Foreign Direct Investment, Credit Assistance and Financing	Export Assistant Purchases Offset Swapping (compensation of offset obligation through reciprocal abatement)

Offsets can take many forms. Offset requirements should be negotiated by the FMS customer and industry prior to the FMS contract. Fully executed agreements prior to award rarely occur due to the complexity of the offset agreements and the extended negotiation timelines required.

Direct Commercial Sales (DCS) to Foreign Governments

DISAM defines DCS as the "export of defense articles, services, and training licensed under the authority of Section 38, AECA, made by U.S. defense industry directly to a foreign government." Basically, DCS is any sale to a foreign government that is not executed through the FMS/FMF system. The U.S. is not a party to a DCS contract. Many large-scale DCS will often have a corresponding and significantly smaller FMS case to accommodate items requiring government-to-government transfer. Other than government-to-government transfers, the required controls are implemented through licensing by the DOS, specifically, the Directorate of Defense Trade Controls (DDTC). Execution of DCS programs is governed by the International Traffic in Arms Regulation (ITAR) under 22 Code of Federal Regulation (CFR) 120-130.

The primary difference between DCS and FMS is that DCS removes the U.S. from its role as the "middleman" and allows the foreign government(s) to interact directly with U.S. industry to determine/execute requirements and to assemble an overall package that best fits the partner nation's needs and budget. DCS is not subject to U.S. procurement regulations and is often subject to the foreign government's procurement rules.

Although sometimes perceived as less cumbersome than FMS (LMD Defense, n.d.), DCS is subject to the same ITAR regulations and export restrictions as FMS. With DCS, the responsibility for ensuring compliance rests with the vendor. The penalties for violation can be severe, ranging from debarment to imprisonment and/or the levying of significant fines. As of August 1, 2016, ITAR violations may result in monetary penalties of up to $1.09 million (per violation). Civil penalties apply to each individual violation. A single violation of noncompliance can be broken down into multiple violations, resulting in penalties in the range of tens of millions of dollars (Export Rules, n.d.).

A summary of best practices applied across Defense International acquisition is shown in Table 2.

Table 2. Defense International Acquisition Best Practices

U.S. Defense International Acquisition Best Practice	Reference
Use an integrated product team (IPT) to integrate international requirements into the program cost, schedule and performance.	https://www.dau.mil/cop/iam/_layouts/
Utilize the DoD Acquisition Strategy Template, April 2011 version, International Acquisition, and Int'l Acqn and Exportability (IA&E).	https://www.dau.mil/cop/iam/Pages/Documents.aspx
Attend DAU International Acquisition Learning Path Courses: ACQ 120 Fundamentals of Int'l Acqn, ACQ 230 Int'l Acqn Integration, ACQ 340 Advanced Int'l Mgmt Workshop, ACQ 380 Int'l Acqn Management, CL Module 048 Export controls.	https://www.dau.mil/
Utilize OUSD(AT&L) Defense Acquisition Guide (DAG) update Feb 2017. Provides comprehensive guidance on IA&E. Use Job Support Tools (JSTs): IA&E Assessment, Acquisition Strategy, International Considerations, Defense Exportability Integration, International Cooperative Programs (ICPs), FMS Systems Acquisition, International Business Planning.	Chapter 1) IA&E Considerations (para 4.2.8) Substantial IA&E Supplement. https://www.dau.mil/tools |
Become a member of DAU IA&E CoP for potential collaboration.	https://www.dau.mil/cop

Defense FMS Military Activity

The DoD Military Services use the FMS process to sell weapons systems to foreign governments. Each Service has unique capabilities to sell and uses different U.S. industries.

U.S. Navy (USN)

The USN engages with partner nations around the world to deliver sea and air-based maritime capabilities to foreign partners. Capabilities include Command, Control, Communications, Computers and Intelligence (C4I), aircraft and airborne weapon systems. ships and submarines and their combat systems, and corresponding logistical supplies and services. The management of these technology transfers plays a key role in shaping the USN's approach to global partnerships and achieving the goals of the maritime strategy. USN manages and implements International Security Assistance programs, Cooperative Development programs, and Technology Security policy. In total, the Navy is tracking ~3,800 open FMS cases with an associated value of ~$118 billion; in FY 2019 alone, there are 432 active cases totaling $5.1 billion. As a reporting unit to the Assistant Secretary of the Navy for Research, Development and Acquisition, the Naval acquisition centers support Regional Combatant Commanders' and Navy leadership's efforts in building long-term relationships with our maritime security partners around the world. By teaming with a wide network of U.S. defense industry and security community product and service providers,

PMs, policy makers, and technical and regulatory agencies, they support the defense requirements of our friends, allies, and coalition partners.[1]

U.S. Army

The U.S. Army often shares military capabilities of tank and helicopter warfighting technology with multiple nation-allies around the world to ensure joint military readiness against shared adversaries. The U.S. Army Security Assistance Command (USASAC) is known as the "Army's face to the world," maintaining relationships with more than 150 countries through its role in FMS. USASAC was located at Fort Belvoir until September 2009, when it became the first flag-level command to move to Redstone Arsenal in 2011, a full two years ahead of the Base Realignment and Closure (BRAC) schedule. The relocation to Redstone Arsenal keeps USASAC in close proximity to Headquarters, U.S. Army Materiel Command, its parent command, and Army Security Assistance Enterprise partners, such as the Program Executive Office/PM community, which also have a presence or connection to Redstone.

The Security Assistance Enterprise includes the security assistance management directorates of each of the AMC life cycle management commands, which ensure the Army supports each FMS case. The technical specifications and costs for specific items, such as helicopters, that are requested by a country must be developed by the SAMD, such as AMCOM (Aviation and Missile Command), and coordinated with the PEO, such as PEO Aviation. Another example would be a tank, which could be coordinated through U.S. Army Tank-Automotive and Armaments Command's (TACOM's) (TACOM Life Cycle Management Command's) SAMD (Gillespie, 2011).

U.S. Air Force (USAF)

The USAF engages with partner nations around the world to deliver aircraft and C4I capabilities. The Air Force brought home $27 billion in foreign military sales in FY 2017—nearly 213% more than the previous year—amid several changes meant to reduce cycle times, according to the service's security assistance and cooperation director.

Brig. Gen. Gregory Gutterman, who leads the directorate that handles FMS sales to 109 foreign allies as part of the Air Force Lifecycle Management Center at Wright-Patterson Air Force Base, said the service usually sells an average of $9–$10 billion per year. "Twenty-seven billion, that's a great number," he told *National Defense* on December 15. "If you look at the Fortune 500, McDonald's sold $24 billion worth of hamburgers last year, and we brought in $27 billion worth of military revenue. That's a significant contribution to our gross domestic product here in our nation," he added.

One major factor was Qatar's decision to purchase 36 F-15 fighter jets and related services for $12 billion, he said, noting, "That was really the reason for such a record year." The other top two drivers were F-35 deliveries to Israel and sustainment costs related to Iraqi F-16 fighter jets. Finally, Gutterman noted that the Air Force security assistance and cooperation directorate, or AFSAC, typically sells about $1 billion worth of supply chain–related costs per year (Machi, 2017).

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[1] See https://www.secnav.navy.mil/nipo/Pages/mission.aspx

A summary of best practices applied across FMS is shown in Table 3.

Table 3. FMS Contracting Best Practices

Foreign Military Sales Contracting Best Practice	Reference
Anticipate lengthy process to accommodate arms export control restrictions. Set expectations early on timelines.	DISAM, Chapter 9
Avoid utilizing Undefinitized Contract Actions (UCA) not in the best interests of the Government. Negotiate FMS contracts up front, technical and cost terms clearly defined.	FAR Part 6.303
Just in time training on the FMS case process and FAR contracting process provided to the FMS sponsor.	https://www.dau.mil/
Anticipate different fund sources. FMF does expire; FMS funds don't expire at FY. Use Agency Comptroller for expenditures.	Funding Source and appropriation rules
Develop comprehensive Life Cycle Cost Estimate with high confidence factor and matured risk model, fully funded at program initiation. Maximize use of existing cost model data.	Funding Sources
Comply with new FMS policy on FFP contract type. Inform FMS customer of policy change; review LOA for terms.	NDAA FY2-18; DPAP memo dtd 28 Jun 18
Contracting officer's representative (COR) and/or the case manager (CM) interface with the contractor, monitoring performance to control scope changes and any resulting changes to LOA.	Program Team structure
Incorporate Earned Value Management (EVM) or EVM-like practices to monitor cost, schedule, and technical performance.	Navy practice
Account for all costs for in-country personnel. Use DOS site and actual experiences to identify costs for in-country personnel.	Navy practice
Establish strong communication and information sharing with contractor and host nation; host nation cannot give direction to contractor; contract is between contractor and PMO.	Navy practice
Ensure that any offsets are clearly defined up front by all parties. Offsets are a mix of direct and indirect contributions.	Air Force practice

Foreign Acquisition Processes

This section presents a comparison assessment of U.S. DoD acquisition system processes and those of its international allies, to include France, Germany, the United Kingdom (UK), and Australia. It also summarizes comparisons of acquisition practices, since the U.S. and other countries have increased their focus on warfare.

Foreign Government Acquisition Systems

Different countries often use different processes and procedures for the acquisition of defense systems. Research shows that the form of government, cultural norms, new age initiatives, industrial base, and ability to innovate across the marketplace all play a pivotal role in how a country's acquisition processes and systems are shaped and organized. As a result, there is no exact or standard method for comparing the efficiency of acquisition systems between the U.S. and other nations. However, this assessment was conducted at a high level to measure the relationships between several objective variables: government structures, policy and oversight, acquisition phases, technology utilization, FMS, acquisition workforce, training, and the industrial base.

Since 2010, the U.S. has heightened its focus on cyber warfare, bringing together cyber capabilities from partner countries along with those of the Army, Navy, Air Force, and Marine Corps. The last several years have witnessed an increased uptick in the expansion of cyber capabilities, training, and expertise across the world-wide governmental workforce. Several countries have adapted to ever-changing cybersecurity procedures and methods by increasing investment levels and coordinating cyber-incident responses. The research analyzed a wide-variety of government resources, cybersecurity market reports and other open sources for reporting both similarities and differences. However, there is inconsistency across nations on how to approach cyber warfare or policy that integrates cyber and acquisition. Many foreign governments are interested in modeling the U.S. with their agile processes that can result in shorter acquisition cycles.

A summary of best practices applied across foreign government acquisitions is shown in Table 4.

Table 4. Foreign Government Acquisition Best Practices

Foreign Government Acquisition Best Practice	Reference
Use Integrated Project Teams for acquisition activities.	All countries
Increase investment on acquisition management training.	All countries
Express socio-economic concern for health of defense industry.	All countries
Negotiate budgets internally within defense organization.	All countries
Establish formalized acquisition structures for weapons systems from conception to disposal.	All countries
Reform the acquisition system continuously.	U.S. and UK
Delegate significant project management powers to an international armaments organization—the Joint Organization for Cooperation in Matters of Armament (OCCAR).	France, Germany, Italy, and the UK
Intellectual property rights are treated under the United Nations Arms Transparency resolution.	France, Australia
Integrate the defense market, including the formation of two organizations—the Western European Armaments Organization (WEAO) and the OCCAR—to improve armament cooperation, which are integral to European countries.	Multiple European governments
Cybersecurity is treated differently in multiple countries. Very little standardization in practice when adopting or accommodating cybersecurity across foreign governments.	Multiple Foreign Governments

NATO Acquisition Process

North Atlantic Treaty Organization (NATO), also known as the North Atlantic Alliance, was formed on April 4, 1949, when 12 countries signed the North Atlantic Treaty (also known as the Washington Treaty). To date, the original goals have not fundamentally changed, nor has the Treaty been rewritten. The only "amendments" have been the inclusion of accession protocols added as new members join. With the addition of Montenegro in 2016, NATO membership has grown to 29 countries. Then, as now, the Treaty commits members to the shared risk, responsibilities, and benefits of collective defense. Moreover, this treaty and its NATO members form a unique "community of values committed to the principles of individual liberty, democracy, human rights, and the rule of law."

There is no singular set of procurement rules for NATO, nor is there a central organization responsible for procurement. The rules and methods of procurement are dependent on the funding sources, the host nation involved, the type of goods and services required, and the degree of urgency (*Navigating NATO Procurement*, n.d.). A host nation is defined as the participating country or NATO Agency responsible for implementing a project. Thus, procurement is undertaken by different entities (countries or NATO Agencies) on behalf of NATO. Notwithstanding, NATO has issued a series of directives and policies that govern the majority of NATO procurement.

The Strategic Command (Bi-SC) Procurement Directive (Bi-SC Directive Number 6-70) dated December 22, 2004, is not rooted in law. The Bi-SC directive is comparable to the U.S. FAR in that it provides overarching acquisition policy guidance to NATO acquisition communities and organizations. Like the FAR, the Bi-SC provides governing principles, roles and responsibilities, procurement policies, and procedures that govern the acquisition of most goods and services.

The AC/3-D/221 (1996 Edition) NATO Security Investment Programme (NSIP)—Procedures for International Competitive Bidding, provides the basic procedures for competition of NATO NSIP projects and is comparable to FAR Part 6. These procedures focus primarily on establishing roles and responsibilities for the host nation in pursuit of maximining competitive opportunities for eligible nations' industries. Ultimately, the host nation plays perhaps the most significant role in the overall procurement process.

The NATO acquisition process requires a significant amount of time and pre-coordination, typically 18–24 months. Once a program or project has been approved, by consensus, the Nations have agreed to fully fund the requirement over its intended period of performance. Once transferred to the host nation, the Nations' financial contributions become no year, no color money. Once approved, a NATO program becomes a fully funded program, like a multi-year procurement in the U.S.

A summary of best practices applied across NATO is shown in Table 5.

Table 5. NATO Best Practices

North Atlantic Treaty Organization Best Practice	Reference
Use consensus decision-making, not voting, and decision is acceptable to all member countries.	NATO Alliance of April 1949
Negotiation is rapid. Members know positions in advance.	NATO Alliance of April 1949
Funding is provided by all nations, according to an agreed cost-sharing formula. All funding decisions by consensus, unanimous.	NATO Security Investment Program
NATO has overarching directives, procurement procedures by host nation. Comparable to the U.S. FAR—however, not law.	Bi-SC and AC/3-D/221
Consider options for cooperative development to reduce overall development costs for participants. Terms of cost share agreement may reduce schedule impact from ITAR restrictions.	NATO practice

Space Exploration Acquisition

International space exploration has moved well beyond the era when the U.S. government was the only heavy investor. The U.S. now collaborates with other countries in space exploration. However, these business relationships and coalitions can take longer and cost more than commercial investments by private firms. A 2012 comparison study by Aerospace between NASA and European Space Agency (ESA) development durations showed that ESA space programs take 30% longer than NASA programs. However, commercial vendors are launching space products even faster, leveraging technology and open systems.

NASA Acquisition and European Space Agency Acquisition Process

NASA's mission is to reach for new heights and reveal the unknown so that all that can be learned will benefit all humankind. NASA typically utilizes the expertise of multiple Centers to address the technical challenges that projects may face. By contrast, ESA's purpose is to provide for and promote, exclusively for peaceful purposes, cooperation among European States in space research and technology and their space applications. All Member States contribute to these programs on a scale based on their Gross Domestic Product (GDP), and provide the necessary expertise to ensure mission success. The other programs, known as optional, are only of interest to some Member States, which are free to decide on their level of participation.

Joumier, Freaner, Bitten, and Edmonds (2012) presented a paper comparing ESA and NASA acquisition approaches and the potential effects on science mission development duration and schedule changes at the joint International Society of Parametric Analysis and Society of Cost Estimating and Analysis Conference in 2012. Their study contrasted and compared the acquisition approaches of NASA and ESA science missions to identify differences and assess the development durations to identify any significant differences in schedule lengths and changes.

ESA and NASA acquisition phases are similar in terms of Phase A Conceptual Design, Phase B Preliminary Design, and Phase C/D Detailed Design and Implementation. Primary differences are in Phase B and Phase C/D. ESA Phase B comprises a competitive Phase B1 and separate Phase B2. ESA Phase B2 is like NASA Phase B. ESA Phases C/D

are similar in content to NASA's, but ESA's contracts are typically FFP. Additionally, role/sharing must be agreed upon by all ESA partner Member States. NASA often serves in the integrator role for science missions, while ESA typically has the prime contractor serve in the integrator role.

The Joumier study compared average schedule durations for ESA Phase B2/C/D versus NASA Phase B/C/D for 32 NASA missions and 21 ESA missions. The findings showed longer schedule durations for ESA missions when compared to NASA missions. The average for NASA non-Earth-orbiting missions was 56.3 months versus ESA's 72.7 months. For Earth-orbiting missions the average for NASA was 70.1 months versus ESA's 91.8 months.

The study did not analyze cost data, but schedule is a proxy for cost and in many instances is proportional to cost. An extension in schedule will result in cost increases depending on the amount of personnel (both government and contractors) involved in the program. Due to the work sharing agreement among ESA Member States, ESA programs overall are more complex to manage, cost more, and take longer than NASA programs.

A summary of best practices applied across NASA and ESA is shown in Table 6.

Table 6. NASA and ESA Best Practices

NASA and International Space Agency Best Practice	Reference
Use streamlined requirement process, limiting requirement growths and reduce time develop to design to meet user needs.	Defense Management System College report, *A Comparison of the Acquisition System of France, Great Britain, Germany and the U.S.*; GAO report, *Briefing on Commercial and DoD Requirements and Acquisition Practices*; and SIA, *Smart Buying—Improving SATCOM Procurement*.
Partner with industry for evolutionary product development to achieve stability, reduce risk; enable short program schedules by limiting new design elements, reduce test and integration.	
Use new procurement techniques, contract type, and incentive fees tied to performance to encourage good contractor behavior.	
Reduce development and procurement schedules by streamlining test approval processes and reduce reporting requirements included in Contract Data Requirements List.	
Use a single IPT including users, stakeholders, and industry to empower PMs to make decisions with minimum oversight and in a timely manner with information from the IPT.	
Leverage commercial by procuring items commercially available to the maximum practical extent including off-the-shelf.	

Commercial Space Acquisition

Several studies have addressed space systems commercial acquisition practices that the DoD could adopt to reduce costs. These practices apply to international space system acquisitions as well. A 2010 GAO report discussed commercial practices that could benefit the DoD, including the recommendation to acquire mature critical technologies prior to program start achieving a high level of technology maturation prior to program initiation. This approach helps to (1) ensure resources and requirements match, and (2) avoid concurrently developing technologies, finalizing designs, and demonstrating manufacturing processes, which can lead to cost and schedule inefficiencies. Other recommendations

included using evolutionary product development, tying contract incentives to performance, and empowering PMs.

The Satellite Industry Association (SIA) published a report on improving DoD satellite communications acquisitions that included the best practices that were very similar to what has been recommended in the past (SIA, 2014). These included performing integrated planning, leveraging commercial capabilities, and establishing polices that underpin a robust supply chain.

The Air Force Studies Board concluded in 2015 that using open standards and purchase data rights at the beginning of the program would shorten the lifecycle. Open standards allow the government to execute modularized functionality upgrades to future spirals without starting a new development. Purchasing data rights at the beginning allows the government to "own the technical baseline" for lowering the cost of sustainment and future upgrades (Air Force Studies Board, 2015, p. 4).

A summary of best practices applied across commercial space acquisition is shown in Table 7.

Table 7. Commercial Space Acquisition Best Practices

Commercial Space Acquisition Best Practice	Reference
Acquire systems that do not require research, development, test, and evaluation (RDT&E) (e.g., acquiring existing satellite bus from prime contractor developed for commercial customer).	Defense Management System College report, *A Comparison of the Acquisition System of France, Great Britain, Germany and the U.S.*; GAO report, *Briefing on Commercial and DoD Requirements and Acquisition Practices*; and SIA, *Smart Buying—Improving SATCOM Procurement*.
Use open standards and purchase data rights at the beginning of the program. Allow the government to execute modularized functionality upgrades to future spirals without starting a new development. Purchasing data rights at the beginning to allow the government to "own the technical baseline" for sustainment.	
Streamline requirements process. Freeze all requirements after authority to proceed. Requirements creep rare in commercial space. Reduce the amount of documentation and CDRLs that are required. Cost will be reduced by staffing resources.	
Streamline the decision-making process to a few key decision makers. Form a decision-making board for key milestones.	
Reduce oversight on the program. Once contract is awarded, let the contractor execute to well-defined requirements and system performances. Reduce the amount of reviews with contractors.	
Use FFP contracts to acquire space systems instead of cost-plus. FFP contracts are commonly used for commercial acquisitions.	

Summary and Conclusion

Globalization intertwines U.S. national security interests with those of the rest of the world. Additionally, spurred on by U.S. coalition partnerships, U.S. industry is expanding into new markets. All this makes for a multi-faceted environment.

- There are many players in the process—Congress, DOS, Commerce, Defense DSCA, Defense Industry, and Commercial Space Industry, each with a different role.
- There are many layers of regulations and agreements—ITAR, EAR, Offset Agreements, Trade Agreements, Treaties, FAR, and other Federal Agency–level regulations and guidance. The timelines driven by the sheer number of players, each with their own set of policies and regulations, drives significant delays.
- There are many investment options for both government and industry—Defense Research and Development (R&D), NASA R&D, Defense Industry Independent R&D (IR&D), and Commercial Space Industry IR&D.
- There are many conflicting Business Rules (e.g., Ownership of Intellectual Property Rights, Cost Sharing of Operations, and Logistics Support). Not all information is releasable to the foreign entities, further slowing the process and international sales.

The White House is driving a review of the acquisition and contracting process that is used to execute arms transfers. Thus, there may be potential changes in arms transfer policies. Program offices need a thorough understanding of the acquisition and contracting process to soundly execute arms transfers under these new policies. Also, the DoD, DOS, and Department of Commerce need a cohesive and collaborative approach to the military systems and arms control.

FMS is still big business. According to the GAO (2019), the DoD reported more than $55 billion in FMS for FY 2018 alone. Although the DoD has undertaken various initiatives intended to make the FMS program more responsive and better able to meet customers' expectations, the FMS process is still perceived as cumbersome and unable to keep pace with foreign governments' demands.

FMS is still a recognized acquisition process. However, DCS is on the rise as U.S. industry seeks to expand markets and sales. Acquisition policy and practice changes may be needed to help minimize the adverse impact of FMS and FMS/DCS hybrid programs. It may be necessary to sustain FMS cases as a viable option in arms transfers.

Based on the research and analysis in this report, there are best practices across multiple processes, organizations, and systems that could be applied. The following is a summary of the key best practices that are consistently applied across organizations:

- Program offices use integrated product or process teams (IPT) to integrate the requirements for international acquisition in executing their programs and provide appropriate oversight.
- Acquisition organizations use various decision-making approaches to achieve consensus or streamline the decision-making process.
- Acquisition and program offices train their staff in international acquisitions.
- Contracting officers and industry factor in the lengthy process for acquisition approvals, including import–export requirements.

- Program offices use commercial products where possible to reduce development, test, and integration issues when selling to foreign customers.
- Contracting officers use fixed price contracting arrangements, where possible, to reduce risk and manage scope changes.

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