Perspectives on Exportability and Program Protection in Virtual Training Systems

Michael Coleman
Naval Air Warfare Center, Training Systems Division
Orlando, Florida, USA
michael.a.coleman@navy.mil

Ricky Denny
Naval Air Warfare Center, Training Systems Division
Orlando, Florida, USA
ricky.denny@navy.mil

ABSTRACT

Department of Defense (DoD) and industry acquisition integrated product teams delivering virtual training systems to international customers must consider exportability and program protection issues common to, and often beyond, those of the corresponding live platforms. DoD Instruction 5000.02 requires DoD program managers to consider exportability and program protection throughout the acquisition lifecycle, ensuring the ability for international partners to procure defense articles while mitigating risks of potential loss of critical program information or technology to potential adversaries. Virtual training systems may contain classified military information, controlled unclassified information, or proprietary information required to replicate or simulate the live platform and its behavior in a synthetic environment. DoD's ability to provide Government-furnished information for International Armament Cooperative Programs and Foreign Military Sales programs is constrained by numerous DoD policies and issuances as well as federal law. Incorrect assumptions by industry, DoD, and international customers regarding DoD's ability to provide classified military information, controlled unclassified information, or proprietary information may lead to cost and schedule overruns and inability to provide capabilities previously advertised to the customer.

This paper defines perspectives on exportability and program protection in the DoD acquisition lifecycle and discusses the relevance of these perspectives to acquisition of virtual training systems. After defining methods of international acquisition of defense articles, the paper aggregates numerous DoD issuances regarding exportability and program protection into perspectives that DoD acquisition personnel may reference in drafting documents and conducting other program activities relating to virtual training system acquisition. The paper concludes with recommendations for DoD, industry, and international customers to consider with the mindset of delivering a valid training system within customer cost and schedule constraints.

ABOUT THE AUTHORS

Michael Coleman is a civilian computer scientist at the Naval Air Warfare Center, Training Systems Division (NAWCTSD) in Orlando, Florida. Mr. Coleman has supported acquisition of virtual training systems at NAWCTSD as a federal employee and a support contractor for over nine years, including four years of support for international programs. Mr. Coleman's industry background includes experience in virtual training system development with Raydon Corporation and Evans and Sutherland. Mr. Coleman holds a Bachelor's of Science in Computer Science from Trinity University in San Antonio, Texas; a Graduate Certificate in Project Engineering from the University of Central Florida (UCF) in Orlando; and a Master's of Science in Modeling and Simulation from UCF.

Ricky Denny is a civilian program manager at the Naval Air Warfare Center, Training System Division (NAWCTSD) in Orlando, Florida. Mr. Denny has supported acquisition of training systems for Aviation, Undersea and International Programs for over ten years at NAWCTSD. Mr. Denny is a retired United States Navy (USN) Master Chief Petty Officer (MCPO) and Level III certified under Defense Acquisition University (DAU).

The views expressed herein are those of the authors and do not necessarily reflect the official position of the organizations with which they are affiliated.

Perspectives on Exportability and Program Protection in Virtual Training Systems

Michael Coleman
Naval Air Warfare Center, Training Systems Division
Orlando, Florida, USA
michael.a.coleman@navy.mil

Ricky Denny
Naval Air Warfare Center, Training Systems Division
Orlando, Florida, USA
ricky.denny@navy.mil

INTRODUCTION

Many governments worldwide increasingly favor virtual training over live training as a cost-effective means of providing instruction to, and ensuring readiness of, their armed forces. The Arms Export Control Act (AECA) provides the President the authority to implement contracts for delivery of defense articles to international governments through the Foreign Military Sales (FMS) program, and to regulate exports of defense articles from US industry through Direct Commercial Sales (DCS). In addition, Title 10 of the United States Code allows the Secretary of Defense to enter into formal international agreements for cooperative research and development, procurement, and production of defense articles. FMS, DCS, and International Armament Cooperative Programs (IACPs) are the primary means by which international customers may acquire defense articles, including virtual training systems.

For DCS programs, DoD involvement is limited to coordination of export license application reviews with the State Department. However in IACPs and FMS programs, DoD conducts procurement of defense articles on behalf of the international customer, and utilizes the Defense Acquisition System to issue contracts to U.S. industry. DoD Instruction 5000.02 requires DoD to balance consideration of international acquisition opportunities with exportability and program protection issues throughout the Defense Acquisition System lifecycle, ensuring the ability for international partners to procure defense articles while mitigating risks of potential loss of critical information or technology to potential adversaries. Federal law, DoD issuances, and related manuals and instructions issued by DoD components regulate DoD authority to deliver or authorize re-use of Government-furnished information (GFI) containing critical program information (CPI), classified military information (CMI), controlled unclassified information (CUI), or proprietary information to which DoD may hold limited rights.

U.S. firms with extensive records of successful international deliveries of defense articles through DCS programs are well aware of information and technology allowable in these articles. However, industry firms seeking or participating in IACPs or FMS programs may incorrectly interpret DoD involvement in these programs as authority by a DoD acquisition team to deliver or authorize re-use of GFI. Industry business development personnel may assume GFI availability in cost estimates that often serve as customer funding levels for IACPs or FMS cases. However, DoD acquisition personnel with technical knowledge of a training system are typically not funded to support prospective international acquisition programs prior to establishment of an IACP or FMS case. A virtual training system may contain or require CPI, CMI, CUI, or proprietary information beyond that of the corresponding live platform, due to the need to replicate or simulate the live platform and its performance in a synthetic environment. Without opportunities to identify presence of CPI, CMI, CUI, or proprietary information in training systems, DoD acquisition personnel are often unable to validate industry assumptions of GFI availability to be delivered under IACPs or FMS programs. Invalid assumptions of GFI availability can lead to industry- or customer-borne cost increases, delay of system delivery, and inability to provide capabilities previously advertised to the customer.

Industry, DoD, and international customer understanding of law and policy regulating DoD's ability to provide GFI on international programs would reduce the potential for cost and schedule overruns in IACPs and FMS programs. While DoD acquisition personnel operate under extensive and constantly evolving statutory and regulatory guidance, much of this guidance can be thought of in terms of high-level perspectives on exportability and program protection. Consideration of these perspectives, with knowledge of underlying law and policy, would enable

industry and international customers as well as DoD to anticipate availability of GFI for IACPs and FMS programs prior to application of the Defense Acquisition System. Continual application of these perspectives to acquisition program activities would ensure that DoD and industry consider exportability and program protection throughout the acquisition lifecycle.

This paper defines perspectives on exportability and program protection in the DoD acquisition lifecycle and discusses the relevance of these perspectives to acquisition of virtual training systems. After defining methods of international acquisition of defense articles, the paper aggregates numerous DoD issuances regarding exportability and program protection into perspectives that DoD acquisition personnel may reference in drafting documents and conducting other program activities relating to virtual training system acquisition. The paper concludes with recommendations for DoD, industry, and international customers to consider in the interest of delivering a valid training system within customer cost and schedule constraints.

METHODS OF INTERNATIONAL ACQUISITION

Foreign Military Sales (FMS)

FMS programs are authorized by the AECA (as amended, 22 U.S.C. 2751 *et seq.*), which grants the President the authority to implement contracts for procurement and delivery of defense articles and services to international customers (22 U.S.C. Section 2762(a)). Executive Order 13637 (2013) delegates this authority: the Department of State (DoS) is responsible for supervision and direction of FMS programs, while DoD is responsible for management of FMS programs. The AECA requires that international customers must reimburse DoD for all FMS procurement costs, including any damages or cancellation costs (Section 2762).

DoD Directive (DoDD) 5132.03 (Under Secretary of Defense for Policy (USD(P)), 2008) defines FMS programs as security assistance activities, a subset of DoD-managed security cooperation activities (p. 11). The Defense Security Cooperation Agency (DSCA) is a DoD agency chartered by DoDD 5105.65 (Director of Administration and Management (DA&M), 2012) and tasked with guiding DoD components with regard to security cooperation and security assistance activities (p. 1). DoDD 5105.65 authorizes and directs DSCA to publish DSCA 5105.38-M, the *Security Assistance Management Manual* (*SAMM*; http://www.samm.dsca.mil). The *SAMM* guides DoD components in development and execution of FMS and other security assistance programs. In addition, DoDD 5105.65 provides for the administration of the Defense Institute of Security Assistance Management (DISAM), which educates the security cooperation workforce (p. 4) and publishes the *Management of Security Cooperation* manual (*Green Book*; Grafton, 2014), a textbook that summarizes DoD policies toward IACPs and FMS programs.

FMS programs require establishment of an FMS case, based on a signed Letter of Offer and Acceptance (LOA) between the United States and the international customer, prior to acquisition of the FMS article. Figure 1 summarizes the FMS case process as it pertains to the Defense Acquisition System. FMS case development begins with response to a Letter of Request (LOR) from a prospective international customer for procurement of defense articles or services. Typically the LOR is routed to a DoD component with principal interest in the defense article or service, i.e., the component that operates and maintains the article or performs the service being requested. This DoD component, known as the Implementing Agency (IA), evaluates the LOR and develops either preliminary Pricing and Availability (P&A) data or a formal LOA in accordance with responsibilities defined in the *SAMM* and other DoD issuances. *SAMM* Section C4.3.2 describes consideration of the "Total Package Approach," which

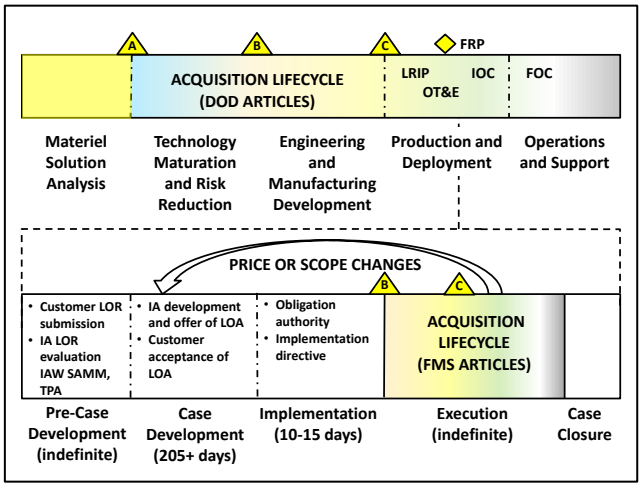

Figure 1- Summary of the FMS Process in the Defense Acquisition System. Compiled from DoDI 5000.02, DISAM *Green Book* (Ch. 5).

ensures the LOA offers all items and services required to operate and sustain defense articles. *SAMM* Table C5.T8 lists coordination of releasability during LOA preparation as a function of the IA.

Changes to price and scope of an FMS case require case development and implementation actions prior to modification of acquisition contracts. *SAMM* Section C6.7 describes changes that require LOA modifications or amendments. A change in price of a defined line item requires the IA to implement a modification to the LOA. However, a change in scope requires that an international customer sign an LOA amendment. *SAMM* Section C6.7.1.1 mandates that a DoD IA offer a new LOA for significant scope changes.

International Armament Cooperative Programs (IACPs)

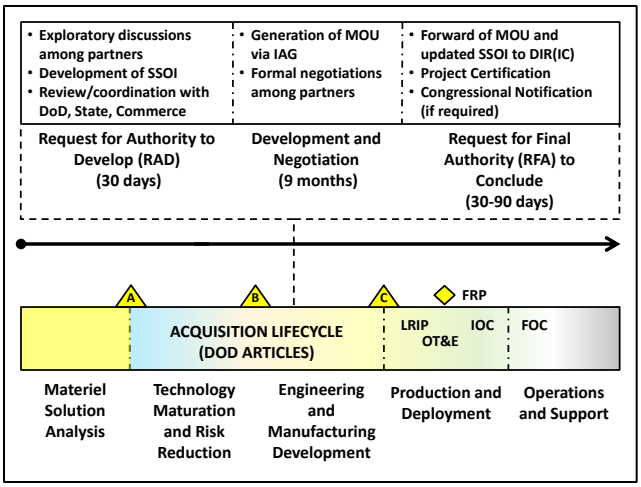

Figure 2 - Summary of the IACP Process (Streamlining I) in the Defense Acquisition System. Compiled from DoDI 5000.02, *IC in AT&L Handbook* (Ch. 12).

Under 10 U.S.C. Section 2350a and 22 U.S.C. Section 2767, DoD may enter into agreements such as Memoranda of Understanding (MOUs) with foreign governments or international organizations of governments for cooperative research and development of defense articles and services. However, the Case-Zablocki Act (1972) requires DoD consultation with the State Department to conclude an international agreement. DoDD 5132.03 (USD(P), 2008) defines IACPs as security cooperation activities (p. 11).

As illustrated in Figure 2, the IACP review and approval process may take close to a year before acquisition efforts may begin. DoDI 5000.02 (Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)), 2013, p. 78) encourages DoD program management to utilize streamlined procedures for negotiation and conclusion of international agreements found in the *Defense Acquisition Guidebook* (DAG). *DAG* Chapter 11 (DoD, 2013, p. 936) discusses development of international agreements in accordance with guidance found in the *International Cooperation in Acquisition, Technology, and Logistics* (IC in AT&L) *Handbook*. Prior to formal negotiations with prospective international partners, a DoD component seeking to establish an IACP must draft a Summary Statement of Intent (SSOI) to request authority to negotiate an international agreement (Director of International Cooperation (DIR(IC)), 2012, p. 217). Upon approval from USD(AT&L)'s Director of International Cooperation (DIR(IC)), the DoD component uses the International Agreement Generator (IAG) to produce a draft MOU. DoD then conducts formal negotiations with prospective international partners and submits the final draft MOU to DIR(IC) with a Request for Final Approval (RFA) to conclude the agreement.

Direct Commercial Sales (DCS)

Section 2778 of the AECA provides for regulation of Direct Commercial Sales (DCS) of defense articles and services between US firms or individuals and foreign persons, including foreign governments. The International Traffic in Arms Regulations (ITAR) contains the State Department's requirements for export of USML items and defense services. DoDD 2040.02 (USD(P), 2014) requires that the Defense Technology Security Administration (DTSA) provide a coordinated DoD position on export license application reviews requested by the State Department (p. 7); DTSA may request that a DoD component provide a position on an application that affects the component (p. 11).

Other Forms of Security Cooperation and Assistance

Other forms of security cooperation and assistance activities include International Military Education and Training (IMET), Foreign Military Financing Programs (FMFPs), and Building Partner Capacity (BPC) programs. DoD acquisition personnel involved in these efforts are subject to the same statutes and regulations as for IACPs and FMS programs.

POLICIES AND ISSUANCES PERTAINING TO INTERNATIONAL INVOLVEMENT IN THE DEFENSE ACQUISITION SYSTEM

DoD acquisition personnel are bound by numerous policies and issuances in formulating the Acquisition Strategy, Program Protection Plan, and other acquisition program documentation. The Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)) has published a chart of "Acquisition Security Related Policies and Issuances" which attempts to summarize DoD security policies relevant to the Defense Acquisition System. The chart, too large to include here, is available on the DASD(SE) site at http://www.acq.osd.mil/se/docs/acq-security-policy-tool/acq-security-policy-tool-chart.pdf. The chart is by no means exhaustive; while some documents have been withdrawn, superseded, or updated since publication, the chart serves as a starting point for DoD acquisition personnel directly involved in security cooperation or assistance activities, as well as other acquisition personnel mandated by DoDI 5000.02 to consider the potential for international involvement in the Defense Acquisition System.

DoD policies and issuances may be considered as the framework for high-level perspectives on exportability and program protection in determining the propriety of a proposed activity. An activity may meet the intent of one or more policies or issuances considered for one perspective, but may not be appropriate under policies or issuances associated with another perspective. In addition, unique characteristics of a specific acquisition program may require consideration of unique perspectives aligned with the types of "Programs" described on the DASD(SE) chart.

PERSPECTIVES ON EXPORTABILITY IN INTERNATIONAL ACQUISITION AND RELEVANCE TO VIRTUAL TRAINING SYSTEMS

Program Protection

DoDI 5000.02 (USD(AT&L), 2013) details the need for program protection to mitigate risks to critical program information (CPI) while providing for international involvement in the Defense Acquisition System (p. 84). DoDI 5200.39 (Under Secretary of Defense for Intelligence (USD(I)), 2010) defines CPI as the "elements or components of a [research, development or acquisition] program that, if compromised, could cause significant degradation in mission effectiveness; shorten the expected combat-effective life of the system; reduce technological advantage; significantly alter program direction; or enable an adversary to defeat, counter, copy, or reverse engineer the technology or capability (p. 17)." The Program Protection Plan (PPP) mandated by DoDI 5000.02 (USD(AT&L), 2013) helps DoD acquisition personnel "manage the risks to critical program information and mission-critical functions and components associated with the program (p. 84)."

DASD(SE) provides several sample outlines for acquisition documents. The PPP outline (DASD(SE), 2011b) calls for identification of CPI and critical components - whether unique to the program, inherited from another program, or analogous (horizontal) to another program - along with risks, countermeasures, and implications for international involvement. This outline also specifies inclusion or reference of the Security Classification Guide (SCG) for the system (p. 25). Volume 4 of DoD Manual 5200.01 (USD(I), 2012) indicates that the SCG may document CUI (p. 10) as well as CMI. For information technology (IT) systems, DoDI 5000.02 (USD(AT&L), 2013) also requires a Cybersecurity Strategy to be appended to the PPP (p. 49).

Numerous acquisition documents require or reference the PPP. DASD(SE)'s Technology Development Strategy (TDS) and Acquisition Strategy outline (DASD(SE), 2011d) requires the DoD acquisition team to consider cost of program protection features with the potential for FMS or DCS programs (p. 15). DASD(SE)'s Systems Engineering Plan (SEP) outline (DASD(SE), 2011c) includes program protection as a mandated design consideration and requires the PPP to be embedded or linked into the SEP (pp. 26-27), thus indirectly referencing the SCG or Cybersecurity Strategy. The Life Cycle Sustainment Plan (LCSP) outline (DASD(SE), 2011a) mentions CPI discussed in the PPP as a planning factor for sustainment activities (p. 38).

IACPs and FMS programs may compel DoD to finalize additional program security documents. *DAG* Chapter 11 (DoD, 2013) indicates that an IACP may require a Program Security Instruction (PSI) if existing security documents between international participants are not sufficient (p. 934). A PSI contains guidance for cooperative program participants regarding handling of CMI and CUI. The *International Program Security Handbook* (ODUSDP[CoS] and Avanco Corporation, 2009) contains a notional example of a PSI (Appendix N). *SAMM* Section C3.2.6 indicates

that FMS programs may require similar program security arrangements (PSAs) if existing agreements are not sufficient. Potential FMS purchase of certain sensitive items described in *SAMM* Section C5.1.4.2 warrant additional pre-LOA program protection considerations.

Disclosure Authority and Releasability

The definition of CPI contained in DoDI 5200.39 does not refer to considerations regarding disclosure authority or releasability of CMI or CUI. Regardless of any status as CPI, a competent disclosure authority must authorize disclosure or release of CMI or CUI in the course of an acquisition program with international involvement. DoDI 5230.11 (USD(I), 1992) requires planning early in the acquisition lifecycle for "the disclosure of classified and controlled unclassified information in support of cooperative programs, foreign participation in the DoD procurement activities, and foreign sales (p. 3)." DoDI 5000.02 (USD(AT&L), 2013) reinforces consideration of disclosure authority in IACPs, as it indicates that IACPs will "fully comply with foreign disclosure and program protection requirements (p. 78)."

DoDI 5230.11 (USD(I), 1992) cautions against making "false impressions" regarding the ability to deliver CMI or related technology to foreign governments before determination of a disclosure decision (p. 3), and that only a Principal Disclosure Authority (PDA) or Delegated Disclosure Authority (DDA) representing the DoD component that originated CMI may authorize disclosure of that CMI to foreign governments (p. 2). DoDI 5230.11 requires that a Delegation of Disclosure Authority Letter (DDL) provide disclosure guidance for CMI to DoD commands and contractors (p. 3). *SAMM* Section C3.2.3 indicates that, barring direct approval from a PDA or DDA, a DDL is required before an IA can commit to disclosure or release of controlled information to international customers.

Federal law and DoD policy also regulate disclosure of CUI to international customers. DoDD 5230.25 (Assistant Secretary of Defense for Research and Engineering (ASD(R&E)), 1995) provides DoD policy for control of unclassified technical data regarding critical technology with military and space applications (p. 1). DoD 5400.7-R (DA&M, 2006), the DoD implementation of the Freedom of Information Act (FOIA), mandates coordination with another DoD component for release of CUI if the information was created for use by that component (p. 21). This requirement is reinforced by *SAMM* Section C3.5.4.2, which requires coordination through disclosure channels for use of CUI pursuant to a FMS program.

The SCG's descriptions of CMI and possibly CUI are critical in evaluating international program activities from a disclosure or releasability perspective. DoD acquisition personnel can determine, through consultation of the SCG and DDL, the extent of CMI (or CUI) authorized for disclosure or release to international customers. Other acquisition documents that reference or include the SCG are the PPP, SEP, and the TDS or Acquisition Strategy.

A DoD component may anticipate releasability concerns when an international customer requests incorporation of systems from other DoD components into a live platform. If a DoD component other than the Implementing Agency for the platform is the principal operator of the unique system (e.g., the U.S. Air Force utilizes a radar system that a customer requests for a U.S. Navy aircraft), the component operating the platform must coordinate with the principal operator of the system. Required technical data for use of platform hardware in a training system includes technical interface documentation to facilitate use of the platform hardware (i.e., "stimulation") within the training system. If simulation of the unique system is desired, performance documentation to facilitate modeling of the unique system is also required.

Releasability concerns regarding technical data in training systems may be present in elements of the synthetic environment in which the simulated platform operates. "Real-world" geospecific visual databases are often derived from geospatial intelligence (GEOINT) such as imagery and terrain data. In addition, correlated products such as maps, aeronautical data, and navigational data are often common between the training system and the live platform. The National Geospatial-Intelligence Agency (NGA) is the controlling component of GEOINT across DoD, as chartered by DoDD 5105.60 (DA&M, 2009, p. 1). DoDI 5030.59 (USD(I), 2006) requires that DoD components obtain releasability permission from NGA for use of unclassified, LIMITED DISTRIBUTION GEOINT and derived products in international programs (p. 6). Volume 4 of DoD Manual 5200.01(USD(I), 2012) reinforces this guidance (p. 23) and categorizes LIMITED DISTRIBUTION GEOINT as CUI (p. 9).

Intellectual Property

Not specifically mentioned on the DASD(SE) chart are policies and issuances pertaining to intellectual property (IP). As an IP Strategy is required by DoDI 5000.02 (USD(AT&L), 2013, p. 76), respect for proprietary data rights requires consideration when determining the propriety of a proposed disclosure or transfer. For a DoD-only system, a DoD component may choose to purchase limited data rights for contractor or subcontractor technical data developed at private expense (see 10 U.S.C. Section 2320). DoD purchase of limited rights creates the potential for IP infringement if the DoD-only system were to be transferred to an international customer under an FMS program. DoDI 2000.03 (General Counsel, DoD, 2010) generally requires DoD to obtain the consent of the owner of privately-held technical information for release to international customers (p. 2). *SAMM* Figure C5.F4 depicts Standard Terms and Conditions included in a LOA for an FMS case. These Terms and Conditions indicate that the international customer acting as the Purchaser indemnifies the USG from liability due to "infringement or other violations of intellectual property or technical data rights."

DoDI 5000.02 (USD(AT&L), 2013) requires the IP Strategy to be "updated throughout the entire product life cycle, summarized in the Acquisition Strategy, and presented with the Life-Cycle Sustainment Plan during the Operations and Support Phase (p. 76)." Section 7.6 of the Technology Development Strategy/Acquisition Strategy outline (DASD(SE), 2011d) details the requirements of a Technical Data Rights Strategy. These requirements include the potential for "a priced contract option for the future delivery of technical data and IP rights not acquired upon initial contract award (p. 12)." Such future delivery of rights may be necessary for international acquisition programs following a DoD-only acquisition program. The LCSP outline (DASD(SE), 2011a) mandates that data rights be represented in the Product Support Strategy (p. 13).

Requests for customer-unique platform systems introduce IP considerations into training system procurements. Simulation of platform hardware, or incorporation or simulation of platform software into a training system may require access to proprietary data for which DoD did not obtain Government-purpose rights in prior procurements. A platform contractor may be reluctant to provide proprietary technical interface or performance data to a training system contractor who may be a competitor for either the live platform or the training system. If the international customer cannot provide required technical interface or performance data as GFI to an FMS program, the customer, training system vendor and DoD Implementing Agency should budget for licensing of required technical data throughout the FMS case development, implementation, and execution during procurement of the training system.

Technical data utilized in operation of the live platform may be commercially licensed as well. Flight planning systems for military platforms may utilize commercially-available GEOINT and navigational data, including airport approach plates and navigation aid data (NAVAIDs) common in civil aviation applications. Training system-specific technical data may also be subject to IP considerations. Commercially-available, licensed GEOINT is present in visual databases in many DoD virtual training systems and DoD source data repositories such as the NAVAIR Portable Source Initiative (NPSI). Typically, this GEOINT is in the form of aerial or satellite imagery, procured by a DoD acquisition program with DoD-wide or agency-only rights. Verification or procurement of sufficient data rights for any commercially-sourced GEOINT is required to facilitate re-use of visual databases in training systems delivered to international customers.

Mechanism of Transfer

Previously-discussed perspectives focused on the intrinsic nature and content of hardware, software, and technical data to be incorporated into a virtual training system. However, the ITAR provides restrictions not only on the technology or information being transferred, but also on the means of transfer. The ITAR provides numerous exemptions to licensing requirements regarding disclosure, carriage, or transfer of defense articles or services to international customers, but does not provide a blanket exemption for industry activities in support of an IACP or FMS program. ITAR Section 126.6(c) provides an exemption for transfer of articles or technical data pursuant to an FMS program, if the transfer is made by the customer's diplomatic mission or registered freight forwarder and is accompanied by the LOA and a DSP-94 form. ITAR Section 126.4 provides for temporary import or export of defense articles and technical data by USG employees, but does not serve as an exemption for transmittal "on behalf of a private individual or firm, either as a convenience or in satisfaction of security requirements." ITAR Section 125.5(c) provides an exemption for disclosure of unclassified technical data during a DoD-sponsored plant visit, but only if the information does not exceed that approved for disclosure. An authorization of a Request For Visit (RFV)

submitted through the Foreign Visit System (FVS) in accordance with DoDD 5230.20 (USD(P), 2005) describes information that can be disclosed to that customer (p. 4).

Potential for export violations during training system acquisition exists when software development, hardware/software integration, or system upgrades occur once hardware has been delivered to the international customer. Industry may expect DoD acquisition personnel to export non-deliverable software development assets, contrary to the intent of ITAR Section 126.4. If these temporary exports are not described in the LOA for an FMS case, industry may require a Technical Assistance Agreement (TAA) from the State Department to facilitate on-site software development, integration, or upgrade efforts.

As training systems increasingly rely on dual-use commercial-off-the-shelf (COTS) computing and hardware technology, a virtual training system delivered to an international customer may not be maintained by that customer's ministry of defense, but by a private firm. FMS programs implement government-to-government transfers of defense articles and services. *SAMM* Section C8.7 describes the need for international customers to submit a request to the State Department for a third party transfer for those not directly employed by the customers' governments. The *IC in AT&L Handbook* (DIR(IC), 2012) indicates that MOUs for IACPs typically contain discussion of third party transfers (p. 216).

A summary of the proposed perspectives and their roles in development of acquisition documents is provided in Figure 3, illustrating use of documents from a DoD or IACP acquisition as a starting point for development of those documents in a subsequent FMS acquisition program. These perspectives on exportability and program protection are suggested as means to summarize federal law and DoD issuances relevant to the Defense Acquisition System. Consideration of these perspectives, and the underlying law and issuances, will allow continual evaluation of program activities regarding disclosure, delivery, or transfer of defense articles and related technical data to international customers.

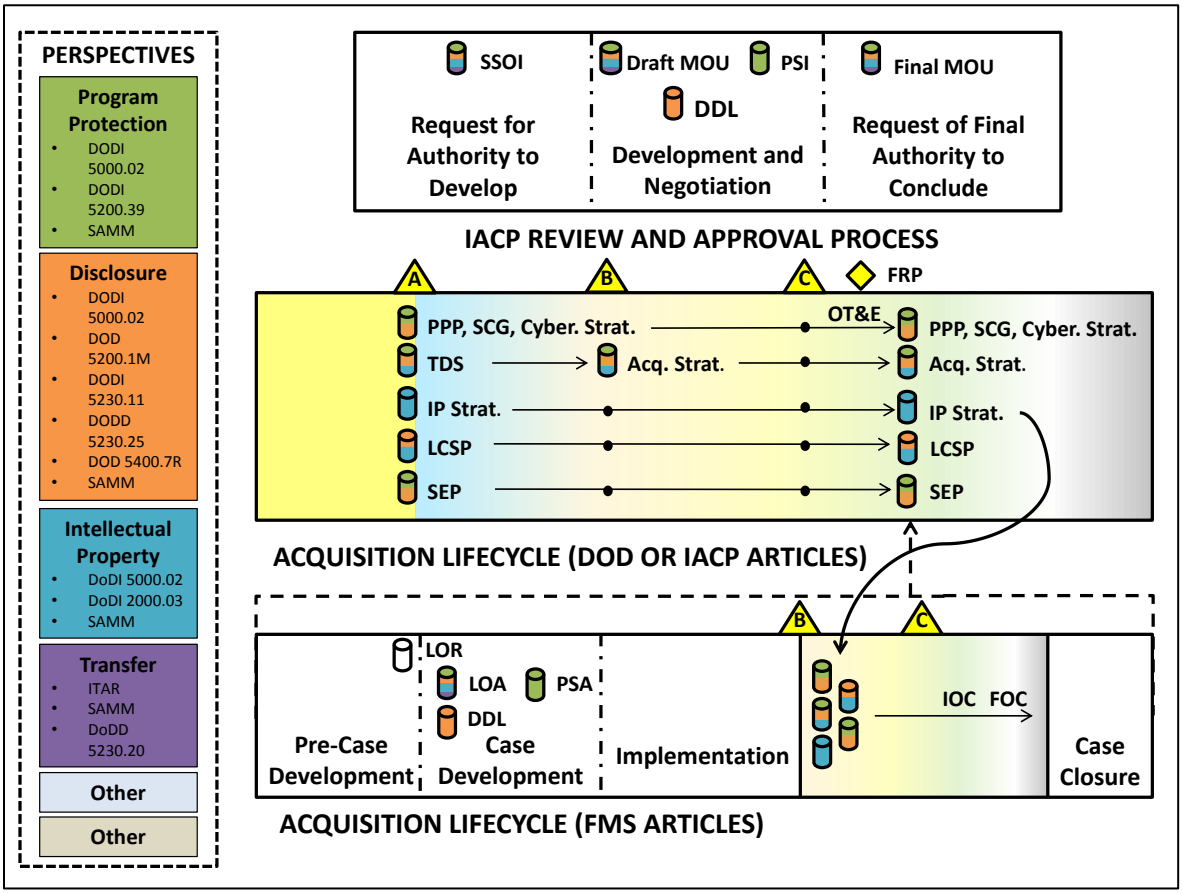

Figure 3 - Exportability and Program Protection Perspectives in International Acquisition

Application of Perspectives throughout the Acquisition Lifecycle

The Acquisition Strategy, PPP, SEP, and other DoDI 5000.02- mandated documents are intended to guide activities up to and beyond award of the procurement contract. DoD release of Request For Proposal (RFP) documents such as the statement of work, performance specification, and GFI list is the initial opportunity to contractually implement exportability and program protection considerations. In particular, DoD inclusion of a GFI list in an RFP for an international program directs industry to propose a technical, cost and schedule solution under the assumption that the GFI is suitable for incorporation into articles delivered to the international customer. DoD oversight of exportability and program protection considerations after contract award includes review of deliverables described in the Contract Deliverables Requirements List (CDRL) included in the contract. Inclusion of exportability and program protection considerations in the CDRL Data Item Description (DID) ensures that software, databases, and technical program documentation such as test procedures and Systems Engineering Technical Review (SETR) presentation material are deliverable to international customers.

CONCLUSION

International acquisition of a military virtual training system from U.S. industry involves numerous exportability and program protection considerations common to, and often beyond, those involved with acquisition of the live platform. These considerations are present whether the system is procured from industry via DCS, or through the United States Government via an IACP or FMS program. DoD personnel involved in the Defense Acquisition System must address these considerations throughout the acquisition lifecycle, in accordance with DoDI 5000.02 and other DoD policies and issuances. Continual evaluation of program activities through program protection, disclosure authority and releasability, IP, transfer, and program-specific perspectives allows DoD personnel to identify relevant policies and issuances and implement their guidance in acquisition program and contract documents.

RECOMMENDATIONS

While DoD policies and issuances serve as the framework for perspectives on exportability and program protection in IACPs and FMS programs, DoD application of these perspectives impact customers' and industry's roles in acquisition as well. The following recommendations are presented with the intent to aid DoD, industry, and international customers in ensuring timely delivery of cost-effective and valid virtual training systems.

For DoD personnel:

- Planning for international involvement in virtual training system acquisition should begin at the earliest stages of the platform acquisition program. Discussions regarding types of CMI, CUI, and privately-held technical data common with the training system, as well as boilerplate discussions of trainer-unique technical data, can be inserted into the SCG, PPP, and other documents for the platform acquisition program. This discussion can be subsequently refined in a separate SCG, PPP, or other acquisition documents for a training system, whether the training system is thought to be for exclusive DoD use or eventually intended for delivery to international customers.
- Completion of international acquisition training coursework offered through the Defense Acquisition University (DAU) or DISAM would assist acquisition personnel, even those in non-management roles and roles supporting DoD-only efforts, in applying exportability and program perspectives throughout the acquisition lifecycle.
- Evaluation of LORs for prospective FMS programs should ensure a "Total Package Approach" for technical data required to develop and operate a virtual training system. Verification of the customer's desire or ability to provide technical data for interface or simulation of platform systems, or the training system's synthetic environment, as GFI will ensure sufficient funding is present in the LOA to address any data voids. If there is no customer indication of ability to provide required technical data, DoD assumption of the need to commercially procure data will ensure the LOA is offered with realistic cost and schedule estimates.

- The GFI list for a training system should be validated through consideration of exportability and program protection perspectives prior to inclusion in an RFP to industry.
- Evaluation of international customer requests for DoD visual databases, GEOINT, and other technical data should include exportability and program protection perspectives prior to offer in an MOU for an IACP, or LOA for an FMS case.
- Update of SETR entry criteria and checklist questions to ensure consideration of exportability and program protection perspectives in acquisition documents and system design will assist DoD and industry personnel in ensuring a system can be delivered to international customers under a current or future acquisition program.

For industry:

- Formulation of initial cost estimates and subsequent cost proposals for IACPs and FMS programs should assume minimal availability of GFI in the absence of a detailed GFI list provided and validated by DoD.
- Consideration of the need to secure export licenses or TAAs in initial cost estimates and cost proposals would ensure compliance with ITAR and other export control regulations, given the limited scope of exemptions relevant to DoD-sponsored programs.
- Documentation of data rights for commercially-procured GEOINT, aeronautical data, and navigational data in the "List of Technical Data and Software to be Submitted with Less than Unlimited Rights" included in contract proposals would assist DoD in identifying required procurement of additional data rights for international customers.
- Familiarity with publicly-available training materials and DoD issuances can lead to more accurate anticipation of DoD exportability and program protection requirements during development of initial cost estimates.

For international customers:

- Engineering-level coordination with DoD acquisition personnel early in IACP or FMS case development would assist DoD in determining the amount of GFI or commercially-procured technical data required for the program. Ability of a customer to guarantee availability of technical data as GFI can greatly reduce required funding of an IACP or FMS case.
- Conversely, a customer desiring the "total package approach" to acquisition of a training system via FMS should define in an LOR its preference for DoD to commercially procure GEOINT and other required technical data with sufficient IP rights for the training system.
- A decision to acquire nonstandard systems for integration into a live platform should include consideration of sufficient IP rights for technical data to interface or simulate that system in a virtual training system. An inability for a third-party training system vendor to cost-effectively develop an accurate, valid virtual training system may lessen the appeal of the nonstandard platform system.
- A requirement to have non-government personnel operate and maintain a training system should be communicated to DoD as soon as it is known, to determine the necessity of a third party transfer agreement for use of the training system and associated operation and maintenance documentation and training.

While these recommendations are arranged by roles in international acquisition, acknowledgement of roles and responsibilities of and by all stakeholders in the Defense Acquisition System will ensure that virtual training systems are developed and delivered to international customers with due consideration given to exportability and program protection requirements.

ACRONYMS

AECA	Arms Export Control Act
ASD(R&E)	Assistant Secretary of Defense for Research and Engineering
BPC	Building Partner Capacity
CDRL	Contract Deliverables Requirements List
CMI	Classified military information
COTS	Commercial-off-the-shelf
CPI	Critical Program Information
CUI	Controlled unclassified information
DA&M	Office of the Director for Administration and Management, Department of Defense
DAG	*Defense Acquisition Guidebook*
DASD(SE)	Deputy Assistant Secretary of Defense for Systems Engineering
DCS	Direct Commercial Sale(s)
DDA	Delegated Disclosure Authority
DID	Data Item Description
DIR(IC)	Director of International Cooperation, Under Secretary of Defense for Acquisition, Technology and Logistics
DISAM	Defense Institute of Security Assistance Management
DoD	(United States) Department of Defense
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
DoDM	Department of Defense Manual
DSCA	Defense Security Cooperation Agency
DTSA	Defense Technology Security Administration
DUSDP(CoS)	Deputy Under Secretary of Defense for Policy, Chief of Staff
EAR	Export Administration Regulation
FMFP	Foreign Military Financing Program
FMS	Foreign Military Sale(s)
FOC	Full Operational Capability
FOIA	Freedom of Information Act
FRP	Full-Rate Production (Decision)
FVS	Foreign Visit System
GC(DoD)	General Counsel, Department of Defense
GEOINT	Geospatial intelligence
GFI	Government-furnished information
IA	Implementing Agency
IACP	International Armament Cooperative Program
IAG	International Agreement Generator
IC in AT&L	International Cooperation in Acquisition, Technology and Logistics
IMET	International Military Education and Training
IOC	Initial Operational Capability
IP	Intellectual property
IT	Information Technology
ITAR	International Traffic in Arms Regulations
LCSP	Life-Cycle Sustainment Plan
LOA	Letter of Offer and Acceptance
LOR	Letter of Request
LRIP	Low-Rate Initial Production
MOU	Memorandum of Understanding

NAVAID	Navigation aid data
NGA	National Geospatial-Intelligence Agency
OT&E	Operational Test and Evaluation
P&A	Pricing and Availability
PDA	Principal Disclosure Authority
PPP	Program Protection Plan
PSA	Program Security Agreement
PSI	Program Security Instruction
RFA	Request for Final Approval
RFP	Request For Proposal
RFV	Request for Visit
SAMM	*Security Assistance Management Manual*
SCG	Security Classification Guide
SEP	Systems Engineering Plan
SSOI	Summary Statement of Intent
TAA	Technical Assistance Agreement
TDS	Technology Development Strategy
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology and Logistics
USD(I)	Under Secretary of Defense for Intelligence
USD(P)	Under Secretary of Defense for Policy
USG	United States Government
USML	United States Munitions List

REFERENCES

Arms Export Control Act of 1976 (as amended), 22 U.S.C. § 2751 *et seq.* Retrieved March 24, 2014 from http://uscode.house.gov/

Assistant Secretary of Defense for Research and Engineering (ASD(R&E)). (1995, August 18). *Withholding of unclassified technical data from public disclosure* (change 1). (DoD Directive 5230.25). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/523025p.pdf

Case-Zablocki Act of 1972 (as amended), 1 USC § 112b. Retrieved April 18, 2014 from http://uscode.house.gov/

Defense Security Cooperation Agency. *Security Assistance Management Manual (SAMM).* Retrieved from http://www.samm.dsca.mil

Department of Defense (2013, September 16). *Defense acquisition guidebook*. Retrieved from https://acc.dau.mil/docs/dag_pdf/dag_complete.pdf

Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)). (2009). *Acquisition security related policies and issuances* (Ver. 1.0) [Chart]. Retrieved from http://www.acq.osd.mil/se/docs/acq-security-policy-tool/acq-security-policy-tool-chart.pdf

Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)). (2011a). *Life Cycle Sustainment Plan sample outline* (Ver. 1.0). Retrieved from http://www.acq.osd.mil/se/docs/LCSP-Sample-Outline-10Aug2011.pdf

Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)). (2011b). *Program Protection Plan outline and guidance* (Ver. 1.0). Retrieved from http://www.acq.osd.mil/se/docs/PPP-Outline-and-Guidance-v1-July2011.docx

Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)). (2011c). *Systems Engineering Plan outline* (Ver. 1.0). Retrieved from http://www.acq.osd.mil/se/docs/PDUSD-Approved.SEP_Outline-04-20-2011.docx

Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)). (2011d). *Technology Development Strategy or Acquisition Strategy sample outline*. Retrieved from http://www.acq.osd.mil/se/docs/PDUSD-Approved-TDS_AS_Outline-04-20-2011.pdf

Director of Administration and Management, Department of Defense (DA&M). (2006, April 11). *DoD Freedom of Information Act program* (change 1) (DoD Regulation 5400.7). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/540007r.pdf

Director of Administration and Management, Department of Defense (DA&M). (2009, July 29). *National Geospatial-Intelligence Agency* (DoD Directive 5105.60). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/510560p.pdf

Director of Administration and Management, Department of Defense (DA&M). (2012, October 26). *Defense Security Cooperation Agency* (DoD Directive 5105.65). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/510565p.pdf

Director for International Cooperation, Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (DIR(IC)). (2012) *International cooperation in acquisition, technology and logistics (IC in AT&L) handbook* (7th ed.). Retrieved from http://www.acq.osd.mil/ic/Links/handbook.pdf

Exec. Order No. 13,637, 78 Fed. Reg. 16130 (2013).

General Counsel, Department of Defense (GC(DoD)). (2010, December 3*). International interchange of patent rights and technical information* (DoD Instruction 2000.03). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/200003p.pdf

Grafton, J. S. (Ed.). (2014). *Management of security cooperation* (33rd ed.; *Green Book*). Retrieved from http://www.disam.dsca.mil/documents/greenbook/25_Complete%2033rd%20Edition.pdf

International Traffic in Arms Regulation (ITAR), 22 C.F.R. Parts 120-130 (2013).

Office of the Deputy Under Secretary of Defense for Policy, Chief of Staff (ODUSDP[CoS]) and Avanco Corporation. (2009). *International programs security handbook: Appendix N – Program Security Instruction*. Retrieved from http://www.avanco.com/_assets/pdfs/AppN_062009.pdf

Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)). (2013, November 25). *Operation of the defense acquisition system* (interim) (DoD Instruction 5000.02). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/500002_interim.pdf

Under Secretary of Defense for Intelligence (USD(I)). (1992, June 16). *Disclosure of classified military information to foreign governments and international organizations* (DoD Directive 5230.11). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/523011p.pdf

Under Secretary of Defense for Intelligence (USD(I)). (2006, December 7). *National Geospatial-Intelligence Agency LIMITED DISTRIBUTION geospatial intelligence* (DoD Instruction 5030.59). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/503059p.pdf

Under Secretary of Defense for Intelligence (USD(I)). (2010, December 28). *Critical program information protection within the Department of Defense* (change 1) (DoD Instruction 5200.39). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/520039p.pdf

Under Secretary of Defense for Intelligence (USD(I)). (2012, February 24). *DoD information security program: controlled unclassified information* (DoD Manual 5200.01, Vol. 4). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/520001_vol4.pdf

Under Secretary of Defense for Policy (USD(P)). (2005, June 22). *Visits and assignments of foreign nationals* (DoD Directive 5230.20). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/523020p.pdf

Under Secretary of Defense for Policy (USD(P)). (2008, October 24). *DoD policy and responsibilities relating to security cooperation* (DoD Directive 5132.03). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/513203p.pdf

Under Secretary of Defense for Policy (USD(P)). (2014, March 27). *International transfers of technology, articles, and services* (DoD Directive 2040.02). Retrieved from DTIC Online website: http://www.dtic.mil/whs/directives/corres/pdf/204002_2014.pdf