# International Acquisition Training Assessment: Life-Cycle Logistics (LCL), Systems Planning, Research, Development and Engineering (SPRDE), and Contracting

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# Contents

**Executive summary** ..... 1
Introduction ..... 1
Our approach ..... 1
Our findings and recommendations ..... 2

**Introduction and background** ..... 5
Policy overview ..... 5
Specialized training in IA ..... 6
Preparing to face the challenges ..... 6
Tasking ..... 7
Organization ..... 7

**Chapter 1: IA activity in security cooperation** ..... 9
IAC ..... 9
IAC agreements and activities ..... 10
IAC program funding ..... 11
SA ..... 11
SA activities ..... 12
Coordination of IA activities ..... 13
The two worlds merge ..... 14
Technology transfer mechanisms ..... 15
Disclosure authority ..... 15
IAC and SA program activity ..... 16
Summary ..... 17

**Chapter 2: International acquisition training** ..... 19
Defense Acquisition Workforce Improvement Act (DAWIA) 1990 ..... 19
IA historical context ..... 20
PM IACP—an example of a way forward ..... 21
PM IACP competencies ..... 22
International training dearth across various workforces ..... 23
The IA training database ..... 24
Summary ..... 25

**Chapter 3: Life-cycle logistics** ..... 27
LCL—a good test case ..... 27
Life-cycle logistician job functions ..... 28
Life-cycle logisticians in the acquisition workforce ..... 29
Life-cycle logisticians in the logistics workforce ..... 29
LCL and DAWIA workforce certification ..... 31
LCL course offerings ..... 33
New considerations for *specialized* LCL training ..... 34

Product Support Manager: functions and requirements ..... 35
Functions ..... 35
ILS expansion to IPS ..... 36
IPS elements and international activity ..... 37
PSM teamwork ..... 37
Requirements ..... 38
PSM signals the potential for future expansion of international acquisition responsibilities to other career fields ..... 39
Summary ..... 39

**Chapter 4: LCL interviews and training analysis** ..... 41
Recurring themes ..... 42
Other topics and themes ..... 45
Summary ..... 47

**Chapter 5: System Planning, Research, Development and engineering (SPRDE), Systems Engineering (SPRDE-SE), Program Systems Engineer (SPRDE-PSE), and Science and Technology Management (S&T)** ..... 49
SPRDE IA assessment ..... 49
SPRDE job functions ..... 50
SPRDE within the Defense Acquisition Workforce (DAW) ..... 51
International programs and the systems engineer ..... 53
Design considerations in international acquisition ..... 55
Current DAU training curriculum for SPRDE (SE/PSE) ..... 56
IA training opportunities for SPRDE (SE/PSE) ..... 58
SPRDE Science and Technology (S&T) Manager ..... 58
Current DAU training curriculum for S&T Management ..... 59
International programs and S&T Management ..... 59
S&T Management and international training opportunities ..... 60
Summary ..... 61

**Chapter 6: Contracting** ..... 63
Contracting IA assessment ..... 63
Contracting job functions ..... 64
Distinguishing the roles of contracting professionals ..... 64
Contracting within the DAW ..... 65
International Contracting within the acquisition workforce ..... 67
IA training opportunities for contracting ..... 68
Contracting Fundamentals – CON 115 ..... 68
Contracting IA training initiatives ..... 69
Summary ..... 69

**Chapter 7: SPRDE and contracting interviews and training analysis** ..... 71
Recurring themes ..... 71
High-level themes ..... 72
Arguments supporting international training ..... 73
International training alternatives, options, and formats ..... 74
Potential barriers to international training ..... 75
Other important SME training themes ..... 76
Summary ..... 79

**Chapter 8: Findings and analysis** ..... 83
International activity and training in the acquisition workforce ..... 83
International training requirement differences ..... 83
Cross-functional international training applications ..... 84
PM IACP adequacy to meet *all* international training needs ..... 85
International training formats across and within career fields ..... 86
Potential for IA training participation in the acquisition workforce ..... 87
Cross-tab of 10 major findings (*highlighting similarities and differences*) across career fields (LCL, SPRDE, and Contracting) ..... 87
Cost planning factors ..... 89
Summary ..... 90

**Chapter 9: Conclusions and recommendations** ..... 91
Our recommendations ..... 92
Potential areas for further study ..... 93

**Appendix A: IA training database** ..... 95

**Appendix B: LCL interviews** ..... 113
Career management ..... 113
Navy Director, Acquisition Career Management (DACM) and Navy International Program Office (NIPO) ..... 113
Program Office directors and staff ..... 113
Joint Strike Fighter (JSF) Program Office ..... 113
JSF Program Office: Cooperative Program Personnel (CPP) ..... 114
Rolling Airframe Missile (RAM) Program Office ..... 114
Life-Cycle Logistics Division Functional Office, Eglin Air Force Materiel Command (AFMC) ..... 115
Headquarters: Wright Patterson Air Force Material Command (AFMC) ..... 116
Logistics Manager: MIDS Joint Program Office ..... 116
Air Force Material Command (AFMC), Eglin AFB ..... 117
Policy and training ..... 118
Under Secretary of the Air Force – International Affairs (SAF-IAPQ) ..... 118
Defense Acquisition University (DAU) training program directors ..... 118
DAU Director, International Programs ..... 118
DAU Academic Programs Office ..... 119
DAU Logistics & Sustainment Center ..... 119

**Appendix C: SPRDE and Contracting interviews** ..... 121
Career management ..... 121
Air Force DACM ..... 121
Army DACM ..... 122
4th Estate DACM ..... 123
Program offices ..... 123
AV-8B V/STOL Harrier (NAVAIR) ..... 123
Navy International Program Office (NIPO) ..... 125
Air Force Materiel Command Warner Robins Air Logistics Center (WR-ALC), Acquisition ..... 126
MIDS Program Office, Space and Naval Warfare Systems Command (SPAWAR) ..... 127
Warner Robins Air Force Base (afb), Air Logistics Center (ALC), Engineering ..... 128
AFMC Warner Robins ALC, Security Assistance Program Manager (SAPM) Office ..... 130
Wright Patterson Air Force Base Schoolhouse ..... 131
Policy and training ..... 132
DISAM Commandant ..... 132
DAU SPRDE (SE/PSE) and S&T Management ..... 132
DAU Contracting Office ..... 132
Defense Procurement and Acquisition Policy (DPAP) ..... 134

**Appendix D: International Acquisitions Processes** ..... 135

**Appendix E: Integrated Product Support Elements** ..... 137

**Appendix F: SPRDE (SE and PSE) job responsibilities by certification levels** ..... 145
SPRDE (SE) ..... 145
Level I ..... 145
Level II ..... 145
Level III ..... 146
SPRDE (PSE) ..... 146
Level I ..... 146
Level II ..... 146
Level III ..... 147

**Appendix G: International acquisition training progress – Summary of implementation for assessed career fields** ..... 149

**Glossary** ..... 151

**References** ..... 155

**List of figures** ..... 159

**List of tables** ..... 161

# Executive summary

## Introduction

The Director for International Cooperation in the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (IC/USD (AT&L)) asked CNA to examine issues related to international acquisition (IA) training in the U.S. defense acquisition workforce for several of the largest career fields. Our study tasks were to identify current IA related training, determine if the available international acquisition training meets the training needs for Life-Cycle Logistics (LCL), Systems Planning, Research, Development and Engineering (SPRDE), and Contracting, and recommend ways to address any IA training gaps.

The premise is that the defense acquisition workforce needs to be more thoroughly trained in order to better understand the rapidly changing IA environment and to be able to traverse the complex requirements of international cooperation in research, development, test, evaluation, production, and follow-on support. Some experts believe that acquisition workforce training requirements may need to be expanded to include cross-functional IA training to other career fields beyond program management (PM), the only career field for which a formal IA training course of study currently exists.

In order to respond to the study tasks, we sought answers to the following questions:

- Are training requirements for IA activity different from training requirements for normal career field activity?
- What aspects of IA training apply cross-functionally to meet the training needs of all career fields?
- Does the existing IA training used for PM adequately meet the needs of our assessment cases—LCL, SPRDE and Contracting*?*
- In order to meet additional IA training needs, is it necessary to develop full career paths, or should other alternatives be considered?

Significant and increasing levels of international acquisition activity fall within two arenas under the umbrella of security cooperation: international armaments cooperation (IAC) and security assistance (SA). Nevertheless, in spite of the flurry of IA activity, basic awareness and understanding of international activities and processes in the acquisition workforce at large are limited. Hence, a secondary objective of this study is to inform, increase awareness, and stimulate IA training initiatives throughout the acquisition workforce.

## Our approach

We reviewed current IA literature and international training offerings through Defense Acquisition University (DAU) and Defense Institute of Security Assistance Management

(DISAM). The DAU has developed and deployed the international acquisition career path (IACP), which was initially tailored to the needs of Program Management (PM) level III. The Defense Institute of Security Assistance Management (DISAM) international affairs certification path (IACP) targets members seeking international affairs certification also at level III. The DISAM IACP is not affiliated with Defense Acquisition Workforce Improvement Act (1990) (DAWIA) certification and levels.

In order to answer our study questions, we conducted interviews with IA subject matter experts (SMEs),. We identified some training overlaps, gaps and specific training needs, as well as hindrances to training, for each of the three career fields. We also identified alternatives for incorporating more training into existing training curricula, and examined potential new training formats.

# Our findings and recommendations

We found that distinct differences exist between traditional career field activities and international acquisition career field activities, and therefore strong arguments can be made in favor of the need for IA training. We found that there are cross-functional international training applications across at least four major career fields – PM, LCL, SPRDE, and Contracting. We found similarities and differences with respect to training needs among the assessed career fields (LCL, SPRDE, and Contracting), indicating that the existing PM IACP meets some, but not all international training needs. Finally, we found that IA training needs can be met through various alternative training formats, and all career fields do not necessarily require a full international career path.

The current status of IA training can be summarized by six IA career path implementation stages. At the highest level, stage 6, PM career path (IACP) is in place with mandatory courses for PMs with more than 50 percent international-related work activity. At stage 4, life cycle logistics does not have an IACP, however, core plus IA training is recommended in the DAU course catalog. SPRDE and S&T management are both at stage 2, with no IACP, but IA competencies and lessons have been embedded in required Career Field courses. Contracting is at stage 2 and has no IACP, with IA competencies and lessons found primarily in continuous learning modules. However, contracting does not currently identify any training as specifically IA. (A chart of the IACP implementation summary is supplied in appendix G.)

The following recommendations represent our analysis based on the three acquisition career field assessments.

1. *Develop a mandatory requirement for training with special emphasis on technology transfer/export control and international security for those working in IA.* This would apply even for those working in IA below the 50 percent threshold, at least for PM, LCL and SPRDE. Mandatory technology transfer/export control training would help to protect the workforce from strict security violation penalties.

2. *Expand and generalize the current content and capacity of the program management IACP to address the IA management and team lead roles taken on by other career fields.* Certain LCL, SPRDE, and Contracting positions work closely with PMs on international programs. They would benefit from a form of the training that PMs now receive, generalized to include an understanding of international job responsibilities cross-functionally.

3. *Incorporate the use of case studies more extensively to provide specialized IA training.* SME consensus is that case studies provide the best format for training involving complex international content and interactions.

4. *Encourage the exchange of mutually beneficial IA perspectives from international and domestic program staff.* Such opportunities may be available through U.S./ International workshops. Another potential opportunity might be to offer a joint credit U.S. IA course between DAU and DISAM.

5. *Consider expanding upon IA lessons and concepts that are being addressed in existing required career field courses.* We found that SPRDE, and, to a much lesser degree, Contracting, have embedded IA lessons, concepts, or activities into some of their required courses. It could be advantageous to expand this strategy so as to include additional pertinent IA content in required courses.

6. *Build an international acquisition web portal.* A web portal or expanded community of practice for international acquisition career fields would enable the acquisition workforce to readily access pertinent IA information.

7. *Develop international acquisition training guidance*. It would be beneficial to document IA training guidance that can be used by all career fields to highlight concepts, courses and or special lessons/topics that are specifically geared to the IA workforce.

8. *Strategically coordinate international acquisition educational resources*. Numerous international training resources available through DAU and DISAM can be coordinated to fill international training gaps and reduce overlaps with the help of a training course matrix/mapping tool. A long-term goal might be to develop interchangeable DISAM/DAU certification programs and course credit.

9. *Implement international training by better tracking and enforcement where appropriate*. Training requirements are not strictly enforced and, in many cases, formal training can be delayed, if not avoided altogether. Furthermore, personnel records need to clearly indicate international training accomplishments.

10. *Formally train SME trainers.* Training costs might be managed more cost effectively by formally training some international program office staff leads (e.g., SMEs in legal, finance, security, PM and others) who would then train international program office staff

11. *Provide just-in-time training opportunities*. Through “mission assistance,” DAU currently has the ability to mobilize staff to various field locations where there are large international programs with significant staff training needs. Coordination of this arrangement to meet some IA training needs might be a cost-effective means of getting training to the acquisition workforce.

# Introduction and background

Today, there is considerable concern about whether the acquisition workforce is adequately trained to meet the ongoing support needs of deployed coalition forces around the globe. Security cooperation activity is increasing through international cooperation (IC) with allies, with coalition partners (including NATO in military operations), and through security assistance (SA) in the form of foreign military sales (FMS). These international alliances require *distinctively international* activities, such as the establishment of bilateral acquisition and cross-servicing agreements (ACSAs) and FMS agreements, in order to support, for example, maintenance and parts supply for coalition forces or purchase of weapon systems. For these programs to succeed, it is important to identify and manage training gaps and inefficiencies.

International acquisition (IA) activities are often complex, requiring the implementation of legal authorities (e.g., U.S.C. Title 10 and Title 22), policy guidance, and time-consuming processes conducted by acquisition workforce professionals and authorities assigned to international programs. As a result, new Department of Defense (DOD) training policies, standards, and opportunities are being considered in an effort to better prepare the USD (AT&L) workforce for the complexities of the international environment. In addition, as the national security strategy continues to evolve, so must DOD's ability to ensure a well-trained workforce to support the warfighters in the field.

## Policy overview

According to the National Security Strategy 2010:

> Strengthening our burgeoning system of alliances and partnerships is essential to implementing our strategy. We have become more integrated with our allies and partners on the battlefield and elsewhere. Our partners provide resources, knowledge, skills, and capabilities we cannot duplicate.

DOD international cooperative acquisition policy declares [1]:

> Armaments cooperation programs strengthen the military and industrial relationships that bind our nation with our partners in strong security coalitions. DOD support for international armaments cooperation activities is authorized and encouraged.

DOD policy also states [1]:

> Establishing and maintaining cooperative relationships with friends and Allies are critical to achieving interoperability of equipment and services to be used by the U.S. Armed Forces and our coalition partners; to achieving economies of scale with our investment resources; and to expanding our influence in critical areas of the world.

# Specialized training in IA

The DOD acquisition workforce will need *specialized* training to be effective in the increasingly complex, challenging world of international acquisition. IA experts contend that the workforce will need to navigate a maze of legal and regulatory requirements in support of the international cooperation priorities set by our national leadership [2]. They will need knowledge about U.S. State Department permissions required for transfers of defense technology between international partners that invoke arms and technology transfers subject to export control laws. The workforce will need awareness of the conditions under which Department of Commerce approval may be required before sharing dual-use technologies. Even technical discussions among allies must be covered by appropriate legally binding agreements or foreign disclosure authorizations. Strong organizational support and training will be necessary for equipping the workforce to meet such critical national security requirements. Further, experts suggest that "the goal of achieving robust international cooperation in many of DOD's major acquisition programs has not yet been fully realized, and many hurdles have yet to be overcome, but things are changing"[2].

# Preparing to face the challenges

International cooperation programs, projects, and activities can potentially promote the achievement of national security objectives. While the primary goal of acquisition, technology, and logistic programs is to enable the warfighter to be well prepared and supported for coalition operations and to defeat adversaries on the battlefield, there are other important cooperation goals and objectives, including influence, access, interoperability, and coalition building. Public Law drives these objectives, as exemplified in Title 10 U.S.C. 2457, which states:

> It is the policy of the United States to standardize equipment, including weapons systems, ammunition, and fuel, procured for the use of the armed forces of the United States stationed in Europe under the North Atlantic Treaty or at least to make that equipment interoperable with equipment of other members of the North Atlantic Treaty Organization.

Specifically, International Armaments Cooperation meets the following DOD policy objectives [3]:

- *Political* – The political fabric of alliance relationships is strengthened through cooperative ventures. As partners are encouraged to act collectively, international legitimacy in coalition operations is promoted.
- *Industrial* – U.S. and partners' capacities can potentially bolster and maintain the defense industrial base.
- *Technical* – A technological lead can be maintained over potential adversaries through sharing of technological and defense research resources between allies and friends. Furthermore, technological sharing can help to maintain a robust Allied-wide defense technology base and help minimize capability gaps among allies/coalition partners.

- *Economical* – Sharing of costs and economies of scale with allies and coalition partners can promote more cost-effective defense procurement and offer more efficient allocation of limited national resources. Cost sharing also benefits short- and long-term support of fielded systems.
- *Operational* – It is critical to U.S. military strategy to attain interoperability with allies and coalition partners and to promote standardization, especially with NATO.

# Tasking

The Director for International Cooperation in the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics asked CNA to examine issues related to potential IA training gaps, beginning with the life-cycle logistics (LCL) career field. We were subsequently tasked to expand the study to include Contracting and SPRDE assessments. The original approach involved using current acquisition workforce competency models to identify IA competencies. We deviated from this approach after becoming aware that international competencies were not captured in the most recent acquisition workforce competency models. We therefore adjusted our tasks to include the following:

1. Identify IA training that is currently available through DAU and DISAM for every statutory acquisition career field.
2. Determine if the available international acquisition training meets the international-related training needs for LCL, SPRDE, and Contracting.
3. Recommend ways to address any identified IA training gaps for these three acquisition career fields.

# Organization

This report is organized as follows:

Chapter 1, *IA activity in security cooperation*, provides an overview of security cooperation, including international armaments cooperation and security assistance, and characterizes some of the activities that occur in these arenas. We discuss some international activities that are foundational and may be applicable for cross-functional training.

Chapter 2, *International acquisition training*, addresses IA training currently offered and approved by DAU and introduces the international acquisition database that contains training course offerings through DAU and DISAM.

Chapter 3, *Life-cycle logistics*, examines the LCL career field and discusses why it makes a good test case for our analysis.

Chapter 4, *LCL interviews and training analysis*, presents the phase I SME interviews, maps perceived training needs to various course offerings, and summarizes the analysis.

Chapter 5, *Systems Planning, Research, Development and Engineering (SPRDE), Systems Engineering (SPRDE-SE), Program Systems Engineer (SPRDE-PSE) and Science & Technology (S&T) Manager*, examines the SPRDE career field and addresses IA applications with respect to the new S&T career field.

Chapter 6, *Contracting*, examines the Contracting career field and addresses IA applications and training.

Chapter 7, *SPRDE and Contracting interviews and training analysis*, presents the phase I SME interviews, maps perceived training needs to various course offerings, and summarizes the analysis.

Chapter 8, *Findings*, discusses similarities and differences we observed in the two phases of the study. We also provide a recap and answers to our initial research questions based on our research and SME interviews.

Chapter 9, *Conclusions and recommendations.*

# Chapter 1: IA activity in security cooperation

Earlier, we provided the following definition of *security cooperation* [3]:

> All Department of Defense interactions with foreign defense establishments to build defense relationships that promote specific US security interests, develop allied and friendly military capabilities for self-defense and multinational operations, and provide US forces with peacetime and contingency access to a host nation.

While security cooperation involves all DOD interactions with international partners, only a subset of the SC workforce is involved in international acquisition. The two acquisition-related components of security cooperation are international armaments cooperation (IAC) and security assistance (SA).[1] We found during our research study that there is limited, if any, awareness about these realms, their differences, and the characteristics of IA activity found within them. Therefore, we provide an introduction to some of the international activity topics deemed necessary for IA professionals by DAU and DISAM IA experts and covered in courses offered by these organizations. An acquisition professional from any career field should have at least a foundational understanding of these topics and related concepts to be able to effectively engage and produce during an international program assignment. In particular, mandatory training requirements should be established for activities involving technology transfer/security export control because violations of export control laws carry serious penalties, including fines and imprisonment.

## IAC

*International armaments cooperation* is defined as:

> cooperative research, development, and acquisition projects and programs that include exchanges of information and personnel; RDT&E of defense technologies, subsystems, and systems or equipment; cooperative production of defense articles or equipment resulting from cooperative R&D program, and DOD procurement of foreign equipment, technology, or logistics support.[2]

IAC activities fall under the authority of Title 10 U.S.C., Title 22 U.S.C., and USD (AT&L) (Policy) in accordance with the DOD Directive 5000 series. IAC is characterized by such activities as developing international agreements between the United States and one or more partner nations or organizations. IAC programs are jointly managed, and

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[1] Other components that make up security cooperation include: combined exercises, military-to-military contact program, humanitarian assistance programs, international training and education, and combined operations support.

[2] Armaments cooperation is not formally defined by statute or regulation, but it is defined in the *2008 Guidance for Employment of the Force (GEF)*, April 21, 2008, and is referenced in the *Office of the Director for International Cooperation, USD (AT&L) International Armaments Cooperation Handbook*, 6th Edition, April 2010.

equitably share costs, benefits, and risks. IAC activities cover the whole life cycle, including research, development, test and evaluation, production, and support.

## IAC agreements and activities

The following list provides examples of the many types of international agreements between the United States and its international partners [1]:

- Information/Data and Personnel Exchange (IEP and DPEP) Agreements
- Arms Export Control Act (AECA) Section 65 Loan Agreements [But Not Leases]
- Test and Evaluation Program (TEP) Agreements
- Cooperative Research, Development & Acquisition Agreements
    - Project Specific Agreements (Memorandum of Understanding (MOU)/ Memorandum of Agreement (MOA))
    - Research, Development, Test & Evaluation Project Agreements (RDT&E PA) or Technology Research and Development Project (TRDP) Agreements
    - Cooperative Production Agreements
- Acquisition and Cross-Servicing Agreements
- Reciprocal Defense Procurement MOUs – Umbrella IAs
- Coproduction Agreements (via license or FMS)

Table 1 gives examples of the level of activity that is occurring between the United States and its international partners.

Table 1. IA types and level of international activity[a]

| Type | Level |
|---|---|
| Information Exchange Program Agreements and Annexes | 26 agreements with > 700 technical area annexes |
| Engineer and Scientist Exchange Program | > 70 personnel exchanged among 17 countries |
| Test and Evaluation Program Agreements | 5 agreements |
| Cooperative Research and Development (R&D) Programs | ~ 500 with 29 countries |
| RDT&E Program Agreements | 19 agreements with 15 countries |
| Acquisition and Cross-Servicing Agreements | 102 agreements |
| Coproduction Programs | ~ 50 with 19 countries |
| Reciprocal Defense Procurement MOUs | 21 countries |

a. Source: [1].

## IAC program funding

International cooperative projects are funded by a variety of sources. Financial resources are available through the following:

- International Cooperative Research and Development (ICRAD) Program [3]
    - "Nunn" Funds –"Proposed by Senator Sam Nunn in the mid-1980s, 'Nunn' funds are annually budgeted by Congress to the military departments (MILDEPs) to be used as seed money to begin ICRAD projects."[3]
    - Congress urged and requested cooperation in R&D and production of conventional defense equipment (FY86)
    - Current funding ~$25 million total for MILDEPs
    - Restrictions apply
- Coalition Warfare Program (CWP) [3]
    - Defense-wide effort to assist the combatant commanders, military services, and agencies to integrate coalition-enabling solutions into current and future U.S. programs
    - Current funding ~$13 million (began in FY01)
- Foreign Comparative Testing (FCT) Program [3]
    - Side-by-side testing of foreign systems
        - Non-developmental items (NDI)
        - Commercial off-the-shelf (COTS) equipment
        - Focus on mature or late-stage technologies
        - Current annual funding ~$30 million
        - Office of the Secretary of Defense (OSD) total investment: $1.14 billion (constant FY09 dollars)
        - FCT program has realized an estimated RDT&E cost avoidance of $7.370 billion in FY08 constant-year dollars[4]
- Project funds [3]
    - Originating from international agreements (RDT&E and procurement funding amounts vary from minimum amounts to billions of dollars in foreign financial contributions.)

# SA

The *Security Assistance Management Manual (SAMM)*, DOD 5105.38-M,[5] defines SA as:

> a group of programs, authorized by law [the Foreign Assistance Act (FAA) and the Arms Export Control Act (AECA) or other related statutes] that allows the transfer of military articles and services to friendly foreign Governments.

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[3] Neal Pollock, *International Cooperative Research and Development Programs Acquisition Review Quarterly*, Summer 1999 <http://www.dau.mil/pubscats/PubsCats/AR%20Journal/arq99/pollock.pdf>.
[4] OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit) Exhibit R-2, FCT, May 2009 <http://www.dtic.mil/descriptivesum/Y2010/OSD/0605130D8Z.pdf>.
[5] Defense Institute of Security Assistance Management (DISAM) website <http://www.dsca.mil/samm/Chapter%2001%20-%20Security%20Assistance%20Overview.pdf>.

> Security Assistance transfers may be carried out via sales, grants, leases, or loans and are authorized under the premise that if these transfers are essential to the security and economic well-being of allied Governments and international organizations, they are equally vital to the security and economic well-being of the United States (U.S.). Security Assistance programs support U.S. national security and foreign policy objectives.[6]

SA activities fall under the authority of Title 22 U.S.C. and USD (Policy) (e.g., National Disclosure Policy). SA is characterized by such activities as letters of acceptance, foreign military sales (FMS), direct commercial sales (DCS) of arms, technology transfer and arms export control, and international military education and training (IMET). A subset of the SA workforce acquires materials for U.S. partners. Other SA professionals are involved in relation-building (military-to-military events), providing equipment (that has been acquired by someone else) and training to our partners not involved in defense acquisition.[7]

## SA activities

FMS and DCS are the two main types of SA activities of greatest interest to the defense acquisition workforce; the list below provides others. FMS involves the use of foreign government funds (or U.S. grants/loans) to purchase U.S. defense equipment through the U.S. Government (USG). This government-to-government transaction uses requisitions to purchase from equipment stock and contracts to obtain services, information, or new production. The relationship consists of letters of offer and acceptance (LOAs) and contract exchanges between governments with no contractor involvement. No profit or loss to USG is allowed [3].

DCS uses foreign funds to purchase U.S. defense equipment directly from the contractor. USG approval is required. A contract is established between the foreign government and a U.S. company requiring export license application and signed export license approval from the USG through State Department and interagency process [3]. Following is a SAMM DOD 5105.38-M list of the main types of program activities carried out under security assistance:

- FMS – executed by DOD
- Foreign Military Construction Services (FMCS) – executed by DOD
- Foreign Military Sales Credit (FMSCR) – executed by DOD
- Leases – executed by DOD
- Military Assistance Program (MAP) – executed by DOD
- International Military Education and Training (IMET) – executed by DOD
- Drawdown – executed by DOD
- Economic Support Fund – executed by Department of State (DOS)
- Peace Keeping Operations (PKO) – executed by DOS

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[6] SAMM website <http://www.dsca.osd.mil/samm/>.
[7] Dr. Mark T. Ahles, Dean of Academic Affairs (DISAM), March 23, 2011.

- International Narcotics Control and Law Enforcement (INCLE) – executed by DOS
- Nonproliferation, Anti-Terrorism, Demining, and Related Programs (NADR) – executed by DOS
- Commercial Export Sales Licensed Under the Arms Export Control Act (AECA) of 1976, as amended (reference (c)) – executed by DOS
- Direct Commercial Sales (DCS) – executed by DOS

# Coordination of IA activities

A number of key government organizations and agencies lead worldwide coordination of security cooperation (SC) activity. The two major SC components, IAC and SA, and their activities, often remain separated within the vast network of DOD organizations. DOD is responsible for IAC activity. The DOS and the DOD are responsible for SA and DCS activity. Dual-use program activities fall under the responsibility of the Department of Commerce (DOC) and the DOD.

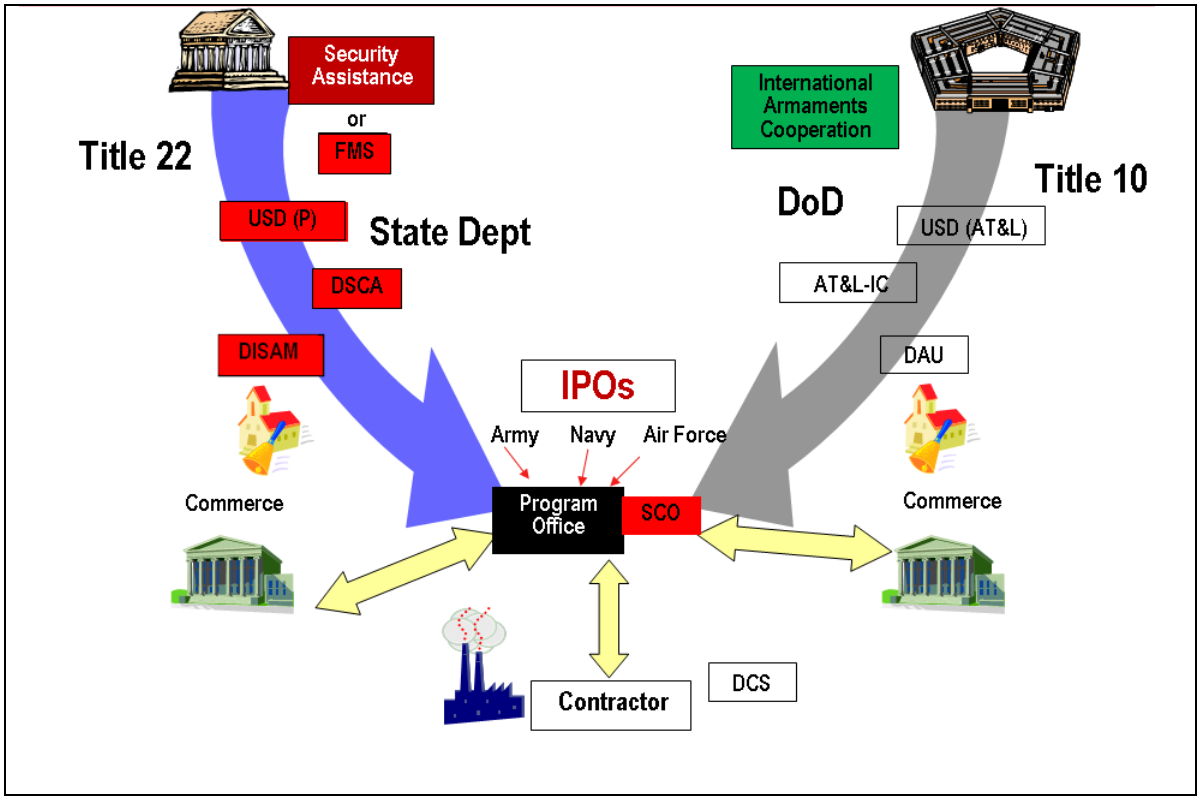
| **SC Component** | **Coordinating government organizations** |
|---|---|
| IAC | DOD and USD (AT&L) |
| SA and DCS | DOD, DOS and USD (Policy) |
| Dual-use programs | DOD and DOC |

Numerous other offices and agencies are either involved directly through the key government organizations or through indirect links and networks. The DOD network includes the Office of the Secretary of Defense, Deputy Secretary of Defense, and the MILDEPs. DOD also includes the Under Secretary of Defense (Policy), the Defense Security Cooperation Agency, the Under Secretary of Defense (Acquisition, Technology & Logistics), the Office of the Director for International Cooperation, the Joint Staff (J-5), and the Regional Command Offices.

The Office of the Under Secretary of Defense for Acquisition, Technology & Logistics (USD (AT&L)) organizes international cooperation, and the Under Secretary of Defense (USD (Policy)) organizes security assistance. In most cases, however, the activities are implemented through processes—international agreements for cooperative programs, FMS transactions, DCS transactions, and technology transfer processes—that require participation by representative organizations from both the IAC and SA arenas [1]. (See appendix C.)

Other entities involved in IA activities include International Program Offices (IPOs), representing each of the military services, and Security Cooperation Offices (SCOs), which are DOD organizations that manage SC programs as legislated by the Sec 515, Foreign Assistance Act of 1961. Other important entities are IA training and educational organizations, such as the Defense Acquisition University, which currently emphasizes IAC training, and the Defense Institute of Security Assistance Management, which focuses its training mainly on SA. (See figure 1.)

Figure 1. Offices and agencies involved in security cooperation[a]




a. Source: Duane "DT" Tripp, DAU Director International Programs (interview at DAU, July 29, 2010).

# The two worlds merge

Although international armaments cooperation and security assistance are typically viewed as separate and distinct program areas under the umbrella of security cooperation, many of their workforce activities and issues actually overlap in the international playing field. The two arenas merge through technology transfer and security export control activities, which permeate both worlds.

The concept of technology security focuses on technology and related sensitive or classified information embedded in the articles and services transferred under SA programs. DODI 2040.02, July 10, 2008 defines *technology* as:

> the application of scientific and technical information and know-how to design, produce, manufacture, use, adapt, reconstruct, or reverse-engineer goods. This includes technical information and data in all forms, including electronic form. The term does not include the goods themselves, nor does it include scientific information in the public domain.

The DISAM defines *technology transfer* as [4]:

> the process of transferring, from an industry in one country to another or between governments themselves, technical information relating to the design, engineering, manufacture, production, and use of goods.

Technology transfer of critical military technologies is regulated by a myriad of USG agencies and is ultimately controlled through a government-to-government agreement that can take the form of a Memorandum of Understanding (MOU), general security agreement, LOA, export license, or other form agreed to by both governments [4].

## Technology transfer mechanisms

Normally, SA, FMS, and DCS are thought of as the primary means by which technology, articles, services, and munitions are transferred. There are, however, many different means for effecting transfers: commercial and government sales; scientist, engineer, student, and academic exchanges; licensing and other information exchange agreements; co-development and co-production agreements; commercial proposals and associated business visitors; trade fairs, exhibits, and air shows; sales to third-party nations; multinational corporation transfers; international programs (such as fusion, space, and high energy); international meetings and symposia on advanced technology; patents; clandestine or illegal acquisition of military or dual-use technology or equipment; dissemination of technical reports/data, whether published or by oral or visual release; dissemination of technical reports under DODD 5400.7 or DOD Freedom of Information Act Program; dummy corporations; and acquiring interests in U.S. industries, businesses, and other organizations [4].

It is critical for anyone working in international programs to understand the legal and national policy basis for DOD's international programs and the principal security considerations before engaging in technology transfer activities. The primary policy governing the process of technology transfer is contained in DODI 2040.02, *International Transfers of Technology, Goods, Services, and Munitions*. The instruction establishes working relationships among the Joint Staff, the services, and the defense agencies [4].

## Disclosure authority

International program implementation is the basis for all disclosure authorities. An international program is defined as follows by National Disclosure Policy (NDP) [5]:

> A lawful and authorized government or commercial effort in which there is a contributing or receiving foreign participant, and information or technology is transferred from one country to another.

International programs are characterized by such activities as FMS or DCS to a foreign nation and International Cooperative Programs [1]. The three primary documents that form the framework for the NDP and provide the legal and national policy basis for security in most DOD international programs are the Arms Export Control Act (AECA), Executive Order (E.O.) 13526 of December 2009, and National Security Decision Memorandum (NSDM) 119 [4].

The AECA governs the export of defense articles and defense services to foreign countries and international organizations; it includes both commercial and government

programs. The AECA forms the legal basis for the security requirements of most DOD international programs. The AECA states that foreign sales (i.e., access) should be consistent with U.S. foreign policy interests, should strengthen U.S. security, and should contribute to world peace. It also requires the President to provide Congress assurances that the proposed recipient foreign country or international organization has agreed to certain security conditions regarding the protection of the articles or information [4]. E.O. 13526, "Classified National Security Information" (December 29, 2009), states that access may be granted only when required to perform or assist in a lawful and authorized governmental function. The executive order also states that classified information cannot be transferred to a third party without the consent of the originator and it provides for the protection of foreign government information [5].

NSDM 119 reiterates the basic requirements of the AECA and E.O. 12958. It emphasizes that classified military information is a national asset and the USG will not share it with a foreign government or international organization (i.e., permit access) unless its release will result in a clearly defined benefit to the U.S. and the recipient government or organization will provide substantially the same degree of protection.

Disclosure authority decisions must be made by such entities as the MILDEPs, the Technology Transfer & Security Assistance Review Board, OSD/State, Assistant Secretary of the Navy for Research, Development and Acquisition (RD&A) Low Observable (LO)/ Counter Low Observable (CLO) Tri-Service Committee, and Executive Committee (EXCOM). Activities include weighing of policy considerations, initiation of policy disclosure processes and actions, export license reviews, disclosure approval, and export license approval. When no disclosure authority is delegated, or when a disclosure requirement exceeds that which is delegated, an exception to the NDP is required, and the NDP exception process is engaged.

# IAC and SA program activity

The latest estimates from USD (AT&L) indicate that there are approximately 61 active international cooperative programs (not including many smaller programs) among the DOD military services, including Major Defense Acquisition Programs (MDAPs).[8] (See table 2.) The U.S. Air Force is engaged in 11 international-related programs: 4 are coproduction international agreement/MOU programs, and 7 are multinational MDAPs. The U.S. Navy is engaged in 23 international-related programs involving 18 coproduction MOUs and 3 multinational MDAPs, with 2 others likely. The U.S. Army is engaged in 27 international programs, the largest number among the services. Of these international programs, 22 involve coproduction MOUs and 5 are multinational MDAPs.

[8] Estimates of International Cooperation program activity provided by Mr. Richard Kwatnoski, Office of the Director for International Cooperation, OUSD (AT&L), September 2010.

According to current Defense Security Cooperation Agency (DSCA) data (see table 3), SA FMS activity[9] for projects over $100 million includes 17 U.S. Air Force projects (nearly $44 billion in sales), 17 U.S. Navy projects (more than $11 billion in sales), and 26 U.S. Army projects (about $21 billion in sales).

Table 2. Significant ongoing international cooperative program activity by military service component[a]

| U.S. military service | International coproduction/MOUs | MDAP acquisition category (ACAT) (ID or IC) |
|---|---|---|
| Air Force | 4 | 7 |
| Navy | 18 | 3 (2 more, likely) |
| Army | 22 | 5 |
| **Total** | **44** | **15** |

a. Source: Office of the Director for International Cooperation, OUSD (AT&L).

Table 3. Significant FMS activity by military service component[a]

| U.S. service component | Number of FMS projects | FMS greater than $100M |
|---|---|---|
| Air Force | 17 | ~$44 B |
| Navy | 17 | ~$11 B |
| Army | 26 | ~$21 B |
| **Total** | **60** | **~$76 B** |

a. Source: Defense Security Cooperation Agency data.

While a count of the number of people involved in these programs is not available, it is most likely a significant figure. The high level of international activity and the size of the, as yet unaccounted for, workforce that may actually be engaged in these activities, make it reasonable to surmise that specialized IA training is needed.

# Summary

In this section, we have provided evidence that training requirements for IA activity are, in fact, different from those for normal career field activity. We discussed security cooperation in terms of its component arenas—IAC and SA—and characterized distinct activities, as well as the common or *merged* activities, within them. We also introduced some of the organizations involved in IA. Any of these aspects of IA can be a source of confusion and frustration for workforce members entering the IA world; therefore, at least a foundational level of training is helpful. Furthermore, it is important for anyone working in international

[9] Data for various other SA programs administered by DOD (e.g., leases) and DOS (e.g., direct commercial sales) are not included in this chart.

programs to understand the legal and national policy basis for DOD international program activity. It is also critical for the IA workforce to know the security considerations for engaging in technology transfer activity as well as the serious penalties that accompany violations, which can include fines and imprisonment.

The breadth of international activity executed and supported by the acquisition workforce is enormous. By current estimates, over 15 percent of active MDAPs are international cooperative programs or have significant international elements. Additionally, there are over 40 international coproduction programs between the DOD military services and foreign partners. Adding to this, there is over $76 billion in FMS case activity under way, generating several billion dollars in FMS administrative surcharges to execute these cases.

# Chapter 2: International acquisition training

In this section, we present historical precedents for IA training in terms of DOD acquisition workforce policies, procedures, and goals. We introduce former Secretary of Defense (SECDEF) memoranda that were the underpinnings for formally established IA training. We introduce the current IA training for the program management career field and describe the IACP training course and the competencies on which it was developed. Finally, we introduce the IA training database that was created for the purposes of this study.

## Defense Acquisition Workforce Improvement Act (DAWIA) 1990

DAWIA 1990 required DOD to establish policies and procedures for education, training, and career development for persons serving in acquisition positions. The law initially identified 11 required acquisition-related positions that evolved into career fields, designating the education, training, and experience necessary for acquisition career progression.[10] Since DAWIA 1990, 3 more career fields/paths have been developed. Until June 2007, there were no distinctly identifiable international acquisition career paths.

According to Grafton [6], DAWIA recognized IA activities by identifying "joint development and production with other government agencies and foreign countries" as one of the 11 functional areas cited in the law; however, DOD commonly referred to this functional area as "international acquisition." Acquisition experts agree that the area of international acquisition has been problematic in regard to establishing education, training, career development, and certification standards because international acquisition is not, predominately, an autonomous career field, but rather is cross-cutting and could apply to a number of acquisition career fields. As Grafton notes, "conducting a joint development and production with a foreign country requires a team of DOD personnel who possess core functional expertise in multiple areas, such as program management, system development, contracting, logistics, manufacturing, and financial management" [6]. Ultimately, acquisition experts did not establish an autonomous international functional career field, but the need for international competencies continues to arise within select acquisition career fields, such as program management.

Following is the list of all DAWIA career fields/ paths, prior to the inclusion of the International Acquisition Career Path:

- Auditing
- Business, Cost Estimating, and Financial Management (BCEFM)

[10] The DAWIA acquisition career field certification standards are published by the Defense Acquisition University (DAU). The current DAWIA acquisition certification standards are accessible from the DAU website at www.dau.mil; Jeffrey S. Grafton, "International Acquisition Career Path," *The DISAM Journal*, September 2008.

- Contracting
- Facilities Engineering (FE)
- Industrial/Contract Property Management (I/CPM)
- Information Technology (IT)
- Life-Cycle Logistics (LCL)
- Production, Quality, and Manufacturing (PQM)
- Program Management (PM)
- Purchasing
- Systems Planning, Research, Development and Engineering – Science and Technology Manager (SPRDE/STM)
- Systems Planning, Research, Development and Engineering – Systems Engineering (SPRDE/SE)
- Systems Planning, Research, Development and Engineering – Program Systems Engineer (SPRDE/PSE)
- Test and Evaluation (T&E) – DT&E Responsibility

# IA historical context

Several authoritative memoranda represent the beginning of attempts to rectify the missing international functional area from the list of DAWIA career fields, and to signify the importance of and the need for international acquisition training.

A 1999 memorandum from John J. Hamre, Deputy Secretary of Defense (DEPSECDEF) (Former) (1997–1999), titled *Training in International Security and Foreign Disclosure Support to International Programs* [7], stated that:

> Strong allies, and well-equipped coalition partners, make America stronger. It is therefore in America's national security interest to promote cooperation with other nations, seek international participation in our weapons acquisition process and support appropriate foreign military sales.

The Hamre memo also upholds the imperative that "we must ensure that sensitive and classified U.S. technology and military capabilities are protected," and that "certain security arrangements must be in place prior to any foreign participation in DOD programs" [7]. He states that it is "therefore vital that every DOD employee involved in international programs understand these security arrangements, as well as the laws, policies, and procedures that govern foreign involvement in our programs" [7].

The memo further directed that:

> All DOD personnel responsible for negotiating, overseeing, managing, executing or otherwise participating in international activities shall successfully complete either the International Security Requirements Course offered by DTUSD (P) PS, the International Programs Security and Technology Transfer/Control course taught by the Defense Systems Management College, or an executive version of the course for mid-level and senior managers now being developed. This requirement applies to anyone who works in an

> office dealing exclusively with international matters, in international cooperation offices within broader functional offices, and those working on international issues within a DOD program [7].

In response to the Hamre memo, the Office of the Deputy to the Under Secretary of Defense (Policy) for Policy Support (DTUSD) (P) (PS) developed training that covered the practical application of relevant law, executive orders, and DOD policies in the area of international program security. All DOD personnel responsible for negotiating, overseeing, managing, executing, or otherwise participating in international activities were required to successfully complete one of several course offerings. The requirement applied to anyone who worked in an office dealing exclusively with international matters, in international cooperation offices within broader functional offices, and on international issues within a DOD program. Examples of applicable activities included security assistance, cooperative research, foreign disclosure, specific country relationships, and other international policy activities [7].

# PM IACP—a successful example of a way forward

A 2007 USD/AT&L memo stated that: “the first goal of the AT&L Strategic Goals Implementation Plan for FY 2007 is to achieve and sustain a high performing, agile and ethical workforce” [8]. He also recommended the DAU international acquisition career path and training for DOD personnel as one ingredient to addressing this goal by ensuring a work-force that is knowledgeable of various processes and the implications for international programs, through improved training and education, and professional development [8]. In the next subsection, we introduce the DAU IACP, which is now well underway.

Stemming from his FY 2007 plan, the Under Secretary of Defense for Acquisition, Technology and Logistics (USD (AT&L)) directed the development of a new international acquisition career path (IACP) [2]. Initial execution of the IACP, begun at the Defense Acquisition University in FY 2009, initially aligned with the program management career field. The new IACP has three levels of international program management courses offered at DAU. Three online DAU courses are recommended for International Program Management Level I: “International Armaments Cooperation (IAC),” Parts 1, 2, and 3. Completion of Technology Transfer and Export Control Fundamentals is recommended for International Program Management Level II. Other recommendations for Level II include a1-week residency course: PMT 202, “Multinational Program Management Course,” and PMT 203, “International Security and Technology Transfer/ Control Course.” A 1-week residency course, PMT 304, “Advanced International Management Workshop” is recommended for International Program Management Level III. These mandatory courses for the IACP are in addition to existing mandatory training requirements for the program management career field.

For the purposes of PM IACP certification, one must be engaged in an international program characterized by one or more of the following criteria:

- Personnel who support IA programs and technology projects with more than 50 percent international-related work activity
- Designated an international program/project or high-potential future foreign sales program, either FMS or DCS, by the USD (AT&L) or Component Acquisition Executive or as further delegated
- Associated with a Technology Development Strategy as required for Milestone A or Acquisition Strategy at Milestones B and C with an international system or cooperative opportunity identified
- Associated with an international agreement, upon submission or approval of a Summary Statement of Intent or with international agreement entered into force
- Associated with an approved LOA for purposes of international sale, lease, or logistics support of U.S. major defense equipment

Program managers for all international programs will be selected based on their achievement of the requirements of the program management career field and those of the IACP [6]. The program management IACP is the first step in addressing international training. The long-term objective is to implement IACPs in other acquisition career fields as needed and tailor them appropriately.[6].

# PM IACP competencies

The IACP courses were developed from competencies that were identified specifically for the program management career field [2]. This was a prerequisite for making the courses mandatory. The competencies are very broad, high level, and applicable mainly to management professionals. As international acquisition training needs develop, DAU is in the process of refining these competencies so that they may describe the necessary knowledge, skills and abilities more comprehensively. A question that remains to be answered fully is which of these competencies, if any, apply cross-functionally to all of the acquisition career fields.

Table 4 displays the identified competencies by PM experience level (Level I, II, or III) and according to the realm of activity in which the competencies apply—*international acquisition environment, strategy and planning for international involvement,* or *international business processes and tools*.

Table 4. IACP competencies for program management[a]

| *Apply to:* | Level I Competencies | Level II Competencies | Level III Competencies |
|---|---|---|---|
| **(1) International acquisition environment** | 1.1 - Identify statutory, regulatory, and policy requirements | 1.1 - Identify and apply statutory, regulatory, and policy requirements | 1.1 - Assess and integrate statutory, regulatory, and policy requirements |
| | 1.2 - Identify stakeholders | 1.2 - Identify and coordinate with stakeholders to determine common positions | 1.2 - Organize and blend stakeholders' needs and requirements |
| | 1.3 - Describe international program security and technology transfer procedures | 1.3 - Use international program security and technology transfer procedures | 1.3 - Recommend, justify, and defend international program security and technology transfer procedures |
| **(2) Strategy and planning for international involvement** | 2.1 - Differentiate between a United States and an international strategy | 2.1 - Plan an international strategy—both cooperative and security assistance | 2.1 - Formulate an international strategy—both cooperative and security assistance |
| | 2.2 - Identify international elements of technology development and acquisition strategies | 2.2 - Plan and modify technology development and acquisition strategies to incorporate international considerations | 2.2 - Critique and recommend technology development and acquisition strategies to incorporate international considerations |
| | 2.3 - Outline proper international technology security considerations | 2.3 - Employ proper international technology security | 2.3 - Employ and validate proper international technology security |
| **(3) International business processes and tools** | 3.1 - Describe Pol-Mil principles as part of customer/partner relationships | 3.1 - Apply Pol-Mil principles to customer/partner relationships leading to signed letters of offer and acceptance or international agreements | 3.1 - Integrate Pol-Mil principles into customer/partner relationships |
| | 3.2 - Describe international acquisition management tools | 3.2 - Categorize the technical capabilities of your customer/partner | 3.2 - Assess and evaluate the technical capabilities of your customer/partner |
| | | 3.3 - Support international agreement negotiation | 3.3 - Conduct international agreement negotiation |
| | | 3.4 - Identify international program contracting impacts | 3.4 - Select and evaluate international acquisition management processes |
| | | 3.5 - Develop funding strategies for international programs | |
| | | 3.6 - Employ international acquisition management tools | |

a. Source: Duane Tripp and Roy Wood. "New Career Path Recognizes Global Scope of Acquisitions: International Acquisition Career Path." *Defense AT&L Magazine*, January-February 2009.

# International training dearth across various workforces

International related training and competencies are insufficient even outside of the defense acquisition workforce. International experts contend that in the U.S. Government there is a huge deficit between the demand for international competencies and the supply of personnel adequately trained to engage in international activities. Experts have noted the deficit among the ranks of U.S. Government leaders and in the DOD acquisition workforce whose work has international implications. According to Michael Rawlings, an instructor at the Federal Executive Institute, 75 percent of U.S. civil service members whose job responsibilities had U.S. policy implications reported that their work has international implications [9]. He writes that data extracted from a similar Federal Executive Institute survey indicate that 60 percent of U.S. civil service and senior executive service employees said they received no formal training for international projects, and that more than 67 percent rated their proficiency at a two (on a scale of five) on a range of critical executive competencies [9]. One report stated that those critical international executive competencies include culture, customs, and history; knowledge of international government operations and officials; best practices for international work, travel, and living; and expectations of international government executives [9].

Similarly, within the defense acquisition workforce, IA experts have noted that there are still too few PMs who are coded and qualified to manage IA programs. According to a recent article, the program management career field population for the DOD components totaled 13,422 civilian and military personnel in 2009. The FY 2009 DAWIA Level III certification requirement was approximately 7,551 for the program management career field, including all military and civilian positions.[11] (See table 5.)

Table 5. Certification level requirements for PM acquisition positions by service[a]

| | DAWIA Level I | DAWIA Level II | DAWIA Level III | Total | DAWIA Level I (%) | DAWIA Level II (%) | DAWIA Level III (%) |
|---|---|---|---|---|---|---|---|
| Army | 165 | 976 | 2,256 | 3,397 | 4.9% | 28.7% | 66.4% |
| Navy | 357 | 766 | 3,474 | 4,597 | 7.8% | 16.7% | 75.6% |
| Air Force | 335 | 2,805 | 1,180 | 4,320 | 7.8% | 64.9% | 27.3% |
| DCMA | 1 | 156 | 177 | 334 | 0.3% | 46.7% | 53.0% |
| DLA | 0 | 2 | 5 | 7 | 0.0% | 28.6% | 71.4% |
| Other Defense | 8 | 102 | 459 | 569 | 1.4% | 17.9% | 80.7% |

Note: There are 197 records with null in the Career Level Required Code field.
a. Source: Appendix 5 DOD Acquisition Mission Critical Career Field Program Management—Appendix 1 DOD Strategic Human Capital Plan Update—The Defense Acquisition Workforce, April 2010.

As of fall 2010, slightly fewer than 400 positions, or 3 percent, of the PM component of the defense acquisition workforce were identified and coded Level III in international acquisition, which qualifies them to conduct and manage international acquisition programs. DOD components are defined as Army, Navy, Air Force, and the Fourth Estate, which includes all DOD organizations, agencies, and field activities not belonging to one of the military departments [9]. Experts believe that there are others in the remaining 120,000 members of the defense acquisition workforce not in the program management career field who are engaged or will be engaged in IA activities, yet international training remains optional, or assignment specific, for these 120,000 workers [9]. Supporting this belief, it is our understanding that the identification and coding of international positions is an ongoing process, and the total is expected to grow over time. As noted earlier in this report, international acquisition activities require a core cross-functional team of experts to accomplish program goals. Thus, current counts are indicative of a workforce-wide deficiency of those qualified to manage IA programs.

# The IA training database

We have compiled an Excel spreadsheet database of IA courses that are offered by DAU. We've also included relevant courses offered by DISAM (see appendix A). The database is segmented by training organization, and it provides course numbers and titles,

[11] AT&L Data Mart (end of FY09).

prerequisites, course descriptions, and course objectives when the information is available. The DAU and DISAM resource databases change frequently. While our study database is most likely not comprehensive, it does provide a useful reference for some of the available IA training course offerings through these organizations.

# Summary

International experts contend that developing international competencies involves more than acquiring new skills; it means acquiring new skills and perspectives. International perspectives on culture, customs, international government operations, and leadership can add great value to how DOD, through its defense acquisition workforce, does business at home and abroad.

Research indicates that there is a deficit in trained international experts, not only within the DOD workforce, but also in other parts of the USG workforce—in particular, among those Federal Executives whose work has international implications. Furthermore, DOD international acquisition activity is increasing. The program management (PM) IACP has paved the way for other career fields by establishing a program of courses tailored to the needs of Level III program managers. Still, just over 9 percent of the program managers are coded as qualified to conduct and manage international acquisition programs.

IA program activities are cross-cutting, often requiring core functional expertise from DOD personnel in multiple career fields, including program management, life-cycle logistics, systems engineering, and contracting. DOD has nearly 120,000 civilian and military personnel in the acquisition workforce outside the PM career field. Some of these members are engaged in IA activities, and yet formal international training remains optional or assignment specific, and none of it is tailored specifically for those other career fields. Along with functional expertise, IA has some very separate and distinct competencies (regulations, laws, policies, strategies, processes, and tools) that require tailored training in order to function effectively in the international arena. Without adequate training, these workforce members are not fully prepared to meet the needs of international programs.

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# Chapter 3: Life-cycle logistics

DOD defines LCL as:

> the ability to plan, develop, implement, and manage comprehensive, affordable, and effective systems support strategies. Life cycle logistics encompasses the entire system's life cycle including acquisition (design, develop, test, produce and deploy), sustainment (operations and support), and disposal [10].

LCL was chosen as an initial test case when a significant number of Air Force logisticians expressed a need for international acquisition training. Initial investigations based on informal data calls indicated that there may be significant international activity conducted by life-cycle logisticians.

## LCL—a good test case

In the course of our research, we found LCL to be a good test case for assessing the potential expansion of international acquisition training for several reasons. First, the LCL career field is off to a good start in terms of IA course offerings. It is the only acquisition career field besides PM that encourages authorized DAU international training courses. LCL managers have begun to recommend training to members of the workforce who are actively involved in international programs. DAU has identified two IA courses and a continuous learning module as Core Plus options for the LCL career field to assist with IA training needs. These include: CLI 007: Technology Transfer and Export Control Fundamentals (Level I), PMT 203: International Security and Technology/Control (Level II), and PMT 202: Multinational Program Management (Level III) (see appendix A for course descriptions).

Another reason why LCL is a good test case is that life-cycle logisticians and Product Support Managers (PSMs) work closely with program managers, who rely heavily on these experts. PSMs assist with developing and implementing management and oversight processes and procedures to ensure the successful design, development, production, fielding, and support of a system (i.e., designing for supportability) [11]. Those individuals working on international programs are of particular interest and relevance for this study.

In fact, career field transfers between the LCL and the PM career field, which is currently supported by the IACP, are significant. The FY 2009 data indicate considerable movement between and within these career fields. The data indicate that 9 percent of LCL acquisition career field gain transfers are primarily from PM. In addition, approximately 21 percent of LCL career field loss transfers are primarily to PM. This high level of transfer activity between the career fields supports the argument for increased IA training in the LCL career field. Furthermore, the PM career field is projected to grow to about 2,600 (19 percent) by 2015 [12]. Some of this growth will be attributed to the DOD

rebalance through in-sourcing initiatives as well as to transfers. As PM expands, the new product support manager (PSM) positions that are being filled by life-cycle logisticians will also cause a rise in demand for Level III life-cycle logisticians, along with potentially greater transfers from LCL to PM, ultimately necessitating greater training needs [13].

# Life-cycle logistician job functions

DAU has compiled a list of key objectives for the LCL workforce, based on broad, core logistic competency areas that were compiled and approved by DOD.[12] The LCL objectives follow:

***Design and develop support (acquisition logistics)***

- Influence product design for supportability
- Develop and refine life-cycle sustainment plan
- Establish the support system
- Identify the support
- Advocate the best design alternative
- Influence detailed design
- Support interdisciplinary integrated product teams (IPTs)
- Foster test and evaluation (T&E) of support system
- Minimize life-cycle costs
- Acquire the support

***Support the design (sustainment)***

- Deploy system (includes support infrastructure)
- Implement and update life-cycle sustainment plan
- Improve sustainability
- Provide the support to the user
- Improve the system and its support
- Modify and upgrade system capabilities
- Minimize life-cycle costs
- Proactively mitigate obsolescence and Diminishing Manufacturing Sources and Material Shortages (DMSMS)
- Plan for eventual system retirement and disposal

[12] Bill Kobren, Director Logistics and Sustainment Center, DAU meeting August 11, 2010. For more information, see DOD Logistics Human Capital Strategy (HCS), Core Logistics Competencies and Proficiencies Booklet, June 1, 2008, Version 1.1.

# Life-cycle logisticians in the acquisition workforce

LCL is the third largest acquisition career field with approximately 13,361 members as of the end of FY08. This number had increased to 17,572 by FY11. Row 7 of table 6 shows—in gray—the breakdown by service branch.

Table 6. Defense acquisition workforce career fields[a]

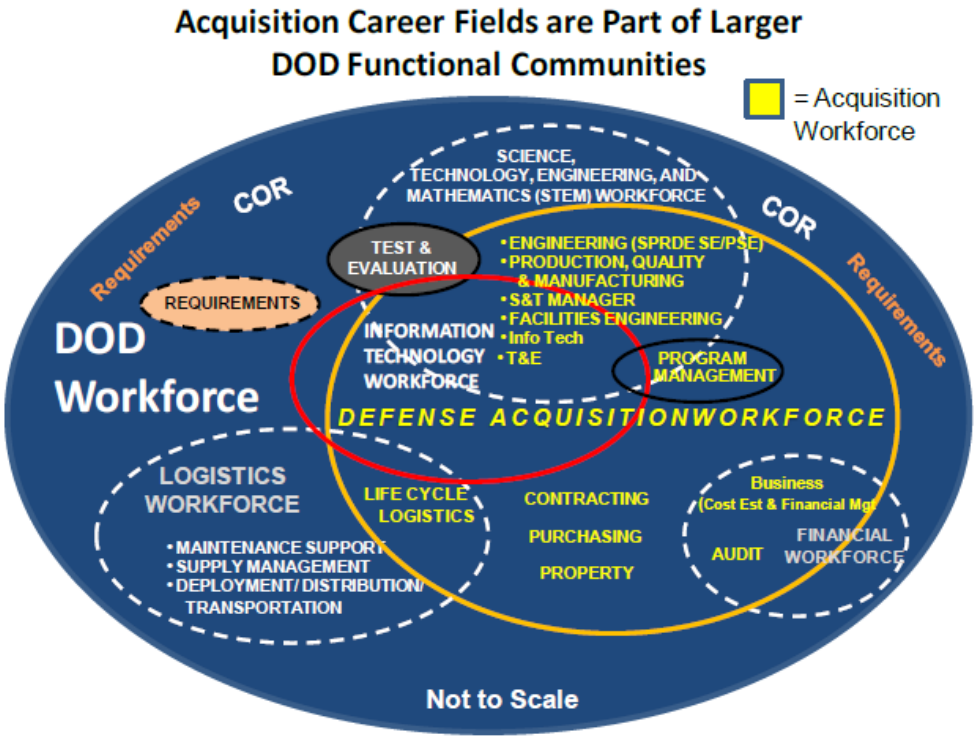
| Career Fields | Army | Navy | Air Force | Defense Agencies | FY11 Total |
|---|---|---|---|---|---|
| Auditing | 0 | 1 | 0 | 4,142 | 4,143 |
| Business | 2,860 | 2,584 | 2,118 | 562 | 8,124 |
| Contracting | 8,839 | 6,001 | 7,865 | 7,087 | 29,792 |
| Facilities Engineering | 1,564 | 5,319 | 20 | 8 | 6,911 |
| Industrial/Contract Property Management | 84 | 78 | 28 | 311 | 501 |
| Information Technology | 2,168 | 1,634 | 1,008 | 355 | 5,165 |
| **Life Cycle Logistics** | **9,285** | **5,332** | **2,704** | **251** | **17,572** |
| Production, Quality & Manufacturing | 2,081 | 2,181 | 404 | 5,061 | 9,727 |
| Program Management | 3,438 | 5,258 | 5,026 | 1,193 | 14,915 |
| Purchasing | 351 | 562 | 145 | 229 | 1,287 |
| SPRDE | 10,882 | 19,581 | 9,498 | 1,801 | 41,762 |
| Test & Evaluation | 2,304 | 3,000 | 2,838 | 304 | 8,446 |
| Unknown | 18 | 0 | 5 | 48 | 71 |
| Total | 43,634 | 51,418 | 31,382 | 21,271 | **148,416** |

a. Source: DAU Defense Statutory Acquisition Workforce, Aug. 3, 2011.

# Life-cycle logisticians in the logistics workforce

Figure 2 is a helpful graphic that depicts the DOD functional and acquisition communities of the logistics workforce. It illustrates how some defense acquisition career fields are part of larger DOD workforce functional communities (e.g., the life cycle logistics acquisition career field is part of the much larger DOD logistics community).

Figure 2. Acquisition career fields as subsets of DOD functional communities[a]




a. Source: [13].

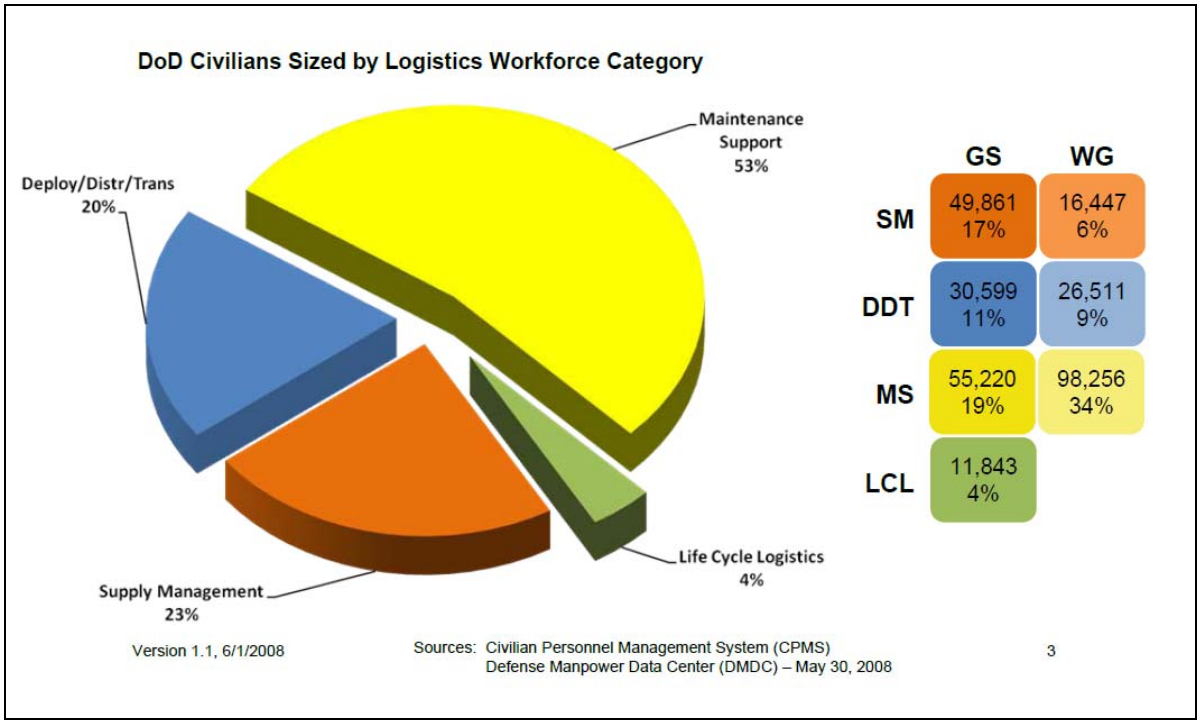
Figure 3 below illustrates the 2008 breakdown of the civilian logistics workforce by category, including LCL. LCL makes up a relatively small proportion (approximately 4 percent) of the DOD civilian logistics workforce. The LCL workforce has grown significantly since then, from 11,843 to 16,861.

Various leadership initiatives are reshaping the LCL workforce. In 2004, DOD logistics senior leaders refocused acquisition logistics to broaden the life-cycle logistics role. The Army created Life-Cycle Management Commands in 2004 and 2005, which led to assimilation that increased the LCL workforce count (civilians + military) by 19 percent since 2005 [13].

The Air Force has assimilated personnel and positions into the acquisition workforce at Air Logistics Centers, and this effort is expected to accelerate, between FY 2010 and FY 2015, to include an additional 200 positions as a result of the Air Force Life-Cycle Logistics Reconstitution Working Group [13].

Furthermore, the Defense Logistics Agency plans to assimilate approximately 2,975 positions between FY 2010 and FY 2015, and has already begun to request training support through DAU. These assimilation efforts for personnel who are focused on life-cycle management and acquisition activities during both system acquisition and sustainment increase the workforce count and have the potential to drive the LCL count above 20,500 by FY 2015 [13].

Figure 3. The DOD civilian logistics workforce[a]




a. Source: [10].

Finally, the demand for LCL expertise will remain strong, as the acquisition community supports approximately 102 major acquisition programs and over 200 other programs identified for special oversight. The number of major defense acquisition programs is increasing, and the demand has prompted ongoing growth planning by senior leaders [13].

# LCL and DAWIA workforce certification

The DOD Functional Leader for Life-Cycle Logistics establishes workforce certification standards (Levels I, II, and III) that are composed of education, training, and experience requirements. As part of the DOD acquisition position designation process, Components establish certification level requirements by career path within a functional career field category for each position. Certification requirements must be met by the incumbent for the position within 24 months. Table 7 shows the LCL certification level requirements established by the Components for designated acquisition positions [13].

Table 8 provides a breakdown of the LCL functional area by career certification level achieved and workforce category, including military/civilian designations. Most of them (4,153) are certified at Level III, 3,321 are certified at Level II, and 3,224 are certified at Level I [14]. It's important to note that this table is based on 2009 data. According to more recent counts, the acquisition workforce is composed of 16,861 life-cycle logisticians.

Table 7. LCL certification level requirements by service (FY2009)[a]

| | DAWIA Level I | DAWIA Level II | DAWIA Level III | Total | DAWIA Level I (%) | DAWIA Level II (%) | DAWIA Level III (%) |
|---|---|---|---|---|---|---|---|
| Army | 471 | 4,521 | 2,960 | 7,952 | 5.9% | 56.9% | 37.2% |
| Navy | 449 | 2,332 | 2,000 | 4,781 | 9.4% | 48.8% | 41.8% |
| Air Force | 180 | 1,612 | 196 | 1,988 | 9.1% | 81.1% | 9.9% |
| DCMA | 1 | 27 | 7 | 35 | 2.9% | 77.1% | 20.0% |
| DLA | 2 | 10 | 10 | 22 | 9.1% | 45.5% | 45.5% |
| Other Defense | 0 | 18 | 52 | 70 | 0.0% | 25.7% | 74.3% |

Note: There is 1 record with null in the Career Level Required Code field, and there is 1 record with Unknown in the Career Level Required Code field.
a. Source: [13].

Table 8. Acquisition workforce life-cycle logistics functional area[a]

| Career Level Achieved | Workforce Category | Army | Navy | Air Force | 4th Estate | Total |
|---|---|---|---|---|---|---|
| Level I | Civilian | 1,901 | 745 | 348 | 12 | 3,006 |
| | Military | - | 114 | 104 | - | 218 |
| Subtotal | | 1,901 | 859 | 452 | 12 | 3,224 |
| Level II | Civilian | 1,560 | 1,169 | 466 | 29 | 3,224 |
| | Military | - | 57 | 40 | - | 97 |
| Subtotal | | 1,560 | 1,226 | 506 | 29 | 3,321 |
| Level III | Civilian | 2,214 | 1,553 | 261 | 61 | 4,089 |
| | Military | - | 56 | 8 | - | 64 |
| Subtotal | | 2,214 | 1,609 | 269 | 61 | 4,153 |
| No Level Achieved/ | Civilian | 2,637 | 966 | 465 | 20 | 4,088 |
| Unknown | Military | - | 237 | 315 | - | 552 |
| Subtotal | | 2,637 | 1,203 | 780 | 20 | 4,640 |
| Totals | | 8,312 | 4,897 | 2,007 | 122 | 15,338 |

a. Sources: AT&L Workforce Data Mart; and [14].

Most life-cycle logisticians in the acquisition workforce are civilians. Components of the U.S. services are composed of strikingly low numbers of military life-cycle logisticians—a total of 931. The Navy has 464, and the Air Force has 467. The Army has no military members accounted for in the LCL workforce; all are civilian. The 4th Estate has accounted for 61 civilian LCLs.

According to the DOD Strategic Human Capital Plan, senior AT&L leaders are partnering with the Components to update enterprise-wide acquisition workforce competencies for all functional communities, including Life-Cycle Logistics [13]. Regularly updated

acquisition functional competency models are enabling workforce assessments and improved, data-driven human capital planning. A role of the LCL Functional Integrated Product Team (FIPT) is to advise the LCL Functional leader. The FIPT is currently assessing the need to extend the experience requirement for certification, better balancing requirements across LCL certification levels and promoting improved integration of key LCL competencies as core competencies across the acquisition workforce competency domain [13].

The most recent Office of the Under Secretary of Defense (OUSD) (AT&L) competency initiative resulted in an updated competency model for acquisition life-cycle logisticians. DAU is working to develop a cross-walk to map the current LCL competency model to existing DAWIA LCL certification training; however, international competencies have not been captured. Capturing IA competencies and incorporating these into acquisition training would enhance the quality and expertise of the LCL acquisition workforce.

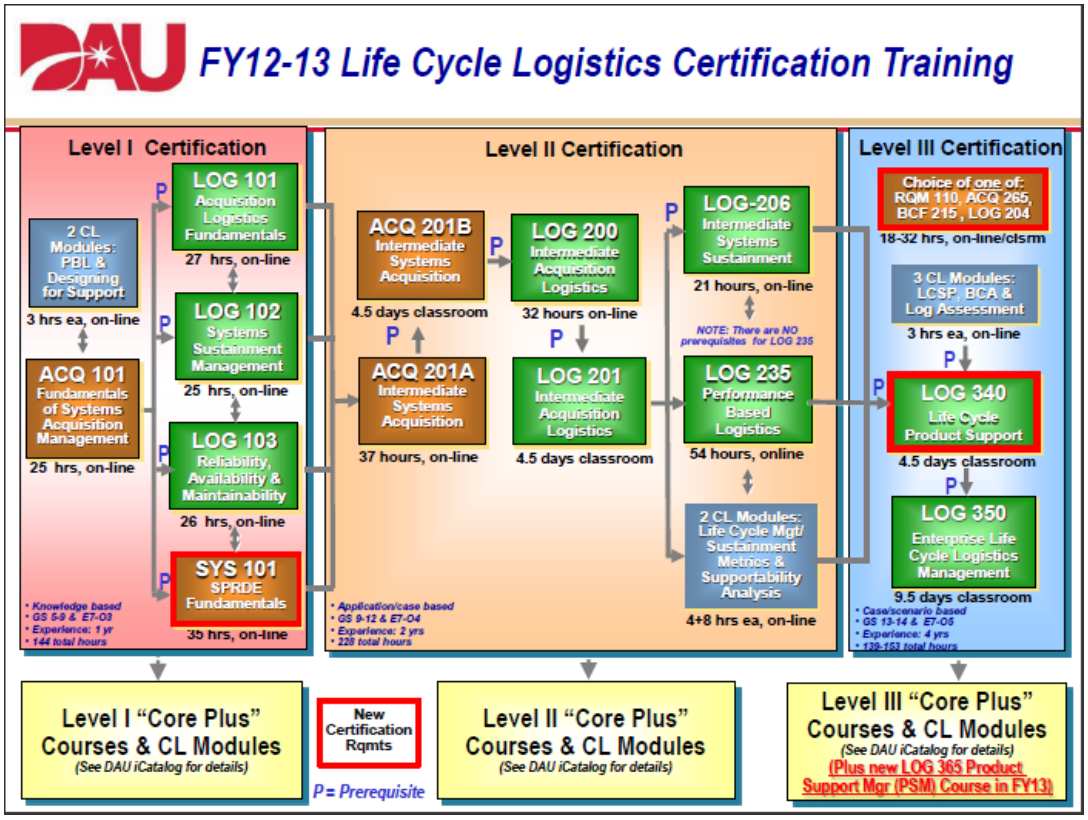
The DOD Logistics Human Capital Strategy identifies competencies and proficiencies required to achieve high-quality performance outcomes that support DOD mission requirements across four major logistic mission domains, one of which is life-cycle logistics. The seven top-level LCL technical competencies identified in the DOD Logistics Human Capital Strategy document are logistics design influence, integrated logistics support planning, product support and sustainment, configuration management, reliability and maintainability analysis, technical/product data management, and supportability analysis. A cross-walk is under way to map the current LCL competency model to existing DAWIA LCL certification training. International acquisition competencies are embedded throughout these top-level competencies but have not yet been clearly identified [15].

# LCL course offerings

In addition to certification requirements, assignment-specific training is required for LCL workforce members. The LCL career field is organized around a “Core Plus” learning architecture that links acquisition functional certification standards with “a variety of assignment-specific short courses” [13]. Career-long development and currency is promoted through a requirement that defense acquisition workforce members complete 80 continuous learning points every 2 years. Currently, there are 27 LCL-related continuous learning modules available to the workforce.

The course listing in figure 4 presents the current DAU LCL Certification Path course offerings. International acquisition training is not specified in the core LCL certification path; however, several program management (PM) IACP courses are recommended, as is a continuous learning (CL) module for workforce members who are involved with international programs. For example, CLI 007—Technology Transfer and Export Control Fundamentals is listed in the DAU Core Plus Development Guide for Level I LCL certification, PMT 203—International Security and Technology Transfer/Control is listed for Level II LCL, and PMT—202 Multinational Program Management is listed for Level III LCL. (See appendix A for more course information.)

Figure 4. Life-cycle logistician certification path[a]




a. Source: DAU "Presentation to US Army PSM Conference: Life Cycle Logistics & Product Support," August 24, 2011.

# New considerations for specialized LCL training

At senior levels, program manager and life-cycle logistician job functions have typically been interrelated, even before the creation of the new product support manager (PSM) position. In this section, we discuss how the interrelated roles of program managers and life-cycle logisticians (Level III) are relevant to our analysis of international training requirements for the LCL test case since these roles likely remain closely connected in international programs.

The similarities between the job of the life-cycle logistician and the expectations of the PSM, as outlined by Congress in the FY 2010 National Defense Authorization Act (NDAA) and by DOD in the November 2009 Product Support Assessment report, make it clear and reasonably expected that life-cycle logisticians are best qualified for the position [14]. The NDAA Section 805 includes a provision identifying Product Support Manager (PSM) as a Key Leadership Position (KLP) on ACAT I MDAP Programs. KLPs are a subset of Critical Acquisition Positions (CAP), the Acquisition Corps, & Defense Acquisition Workforce [16].

According to logistic expert Bill Kobren, PSMs will likely be drawn from among the best, brightest, and most expert life-cycle logisticians in the department. Kobren emphasizes that "the key is to ensure they are trained, equipped, and have the resources, tools, and fortitude to successfully address the challenges, responsibilities, and expectations levied upon them" [14]. In fact, the new emphasis on skill specialization is one of the reasons for mandating the new PSM position.

Furthermore, Kobren states that:

> DOD Life Cycle Logistics (LCL) training provided by the Defense Acquisition University (DAU), while robust and competency-based, is not specifically tailored for, or directly targeted at, the executive level and/or senior logistician in a program office. This inevitably leads to the question of whether an individual with Level III LCL certification has received sufficient training, has mastered the requisite competencies, or has demonstrated proficiencies required for success as a PSM [14].

# Product Support Manager: functions and requirements

## Functions

Next we review some of the functions and requirements that will be expected of life-cycle logisticians in the new PSM position.

The Product Support Manager (PSM) Guidebook, April 2011, lists the following 6 major tasks of the PSM for a major weapon system:

1. Develop and implement a comprehensive product support strategy for the weapon system.
2. Conduct appropriate cost analyses to validate the product support strategy, including cost benefit analyses as outlined in Office of Management and Budget Circular A-94.
3. Assure achievement of desired product support outcomes through development and implementation of appropriate product support arrangements.
4. Adjust performance requirements and resource allocations across product support integrators and product support providers as necessary to optimize implementation of the product support strategy.
5. Periodically review product support arrangements between the product support integrators and product support providers to ensure the arrangements are consistent with the overall product support strategy.
6. Prior to each change in the product support strategy or every five years, whichever occurs first, revalidate any business case analysis performed in support of the product support strategy.[13]

In addition to these major tasks, the PSM Guidebook lists other *principal* duties.

[13] Public Law 111-84, Section 805 of the 2010 National Defense Authorization Act.

One of the logistic managers we interviewed explained that PSMs must be ready to work with integrated logistic support (ILS) elements by the end of December 2010, according to recent legislation (Public Law 111-84, Section 805). The logistic manager stated that the ILS elements might be a good starting point for LCL IA training considerations. Apparently, because it was considered to be primarily related to sustainment functions, this is an area of expertise that is not familiar to some life-cycle logisticians. For example, life-cycle logisticians involved in FMS cases would not be involved in sustainment. However, life-cycle logisticians who support international cooperation programs as PSMs will likely need additional IA training tailored to this new role.

For our discussion, we use the following definition of ILS elements, found in Army Regulation 700-127 [17]:

> the process that facilitates development and integration of all of the logistics support elements to acquire, test, field, and support Army systems. From the earliest stages of the systems development, the acquisition strategy and SS will ensure that the requirements for each of the elements of ILS are properly planned, resourced, and implemented. These actions will enable the system to achieve the operational readiness levels required by the warfighter at the time of fielding and throughout the life cycle.
>
> All ILS elements must be developed as an integral part of the system engineering effort and with each other. Tradeoffs may be required between elements in order to acquire a system that is affordable (lowest LCC), operable, supportable, sustainable, transportable, and environmentally sound within the resources available.

The ten ILS elements are listed below:

- Design interface
- Maintenance planning
- Supply support
- Technical data
- Support equipment
- Packaging, handling, storage, and transportation (PHS&T)
- Manpower and personnel
- Training and training support
- Computer resources support
- Facilities

## ILS expansion to IPS

Within product support, life cycle management involves a package of support functions required to deploy and maintain the readiness and operational capability of major weapon systems, subsystems, and components, including all functions related to weapon systems readiness [18]. These support functions related to weapon system readiness are made up of tasks that are associated with the ILS elements. The 10 ILS elements have now been expanded to 12 Integrated Product Support (IPS) elements. The two new elements are *Product Support Management* and *Sustaining Engineering*. The 12 elements and tasks

should be considered during the development, implementation, and subsequent revalidation of the product support strategy.

Furthermore, product support and system engineering activities *must be integrated* to deliver an effective and affordable product support package [18]. (This is a key point to consider in later discussions about acquisition training for SPRDE.) PSM involvement early in design is a critical part of ensuring a supportable and affordable system, and should begin prior to Milestone A with early requirements determination, and continue through system design, development, operational use, retirement, and disposal. Research based on ongoing DOD concerns and efforts to improve product support management indicates that 60–70% of system life cycle costs are frequently in Operations and Sustainment (O&S) [18]. Analysts believe that a more uniform and rigorous application of product support governance and best practices will help with continued improvements in this area.

Product support is scoped and managed by the IPS elements, which provide a structured and integrated framework. The IPS elements include the following, with the two new elements shown in bold and italics:

- ***Product support management***
- Design interface
- ***Sustaining engineering***
- Supply support
- Maintenance planning and management
- Packaging, Handling, Storage, and Transportation (PHS&T)
- Technical data
- Support equipment
- Training and training support
- Manpower/personnel
- Facilities and infrastructure and
- Computer resources

## IPS elements and international activity

We would like to point out here that one of the new IPS elements, *Product Support Management*, contains two sub-elements that are directly related to international activities: International Partners (1.2.2.), and Foreign Military Sales (FMS) (1.2.3.). A new publication, The Integrated Product Support (IPS) Element Guidebook, expected to be completed by the end of CY 11, will contain detailed subtask descriptions for each of the IPS elements/sub-elements [19]. The 12 IPS elements and sub-elements are listed in appendix E – Integrated Product Support Elements.

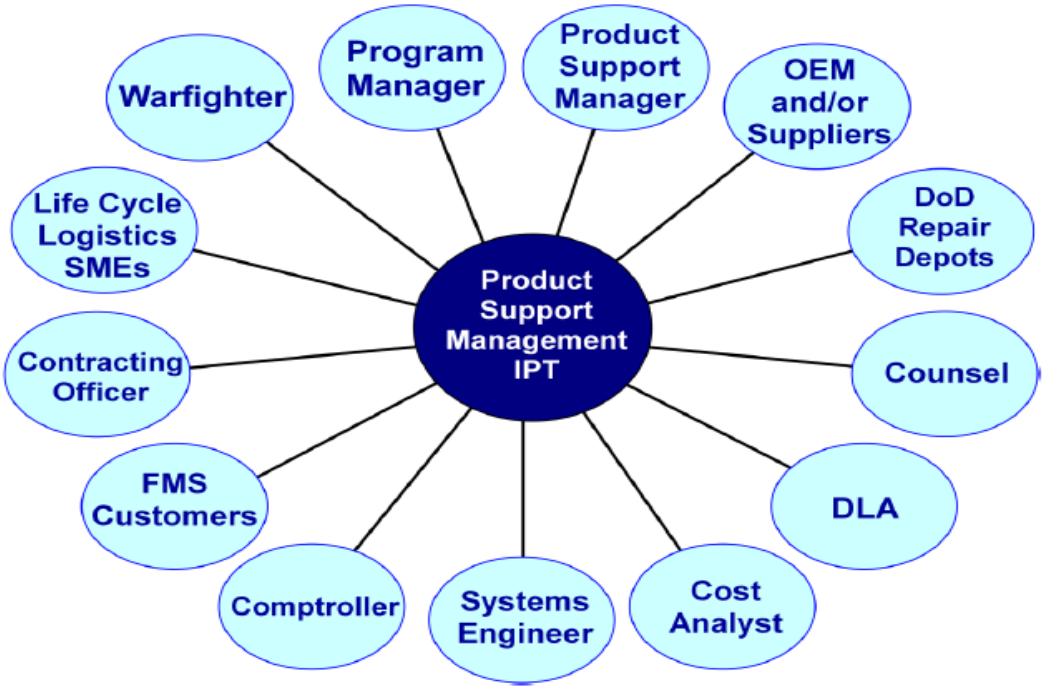
## PSM teamwork

According to the PSM Guidebook, April 2011, the PSM forms the team that will develop, implement, and manage product support, and that is responsible for planning, developing,

implementing and executing the product support strategy. Product support encompasses a range of disciplines including, but not limited to, logistics, requirements, operational mission planning, financial, contracts, legal, and integrated product support functional subject matter experts. The PM is the total life cycle systems manager and the PSM is the orchestrator.

The integrated product team (IPT), led by the PSM, may consist of Government and private-sector functional experts and should include all appropriate stakeholders, including warfighter representatives (see figure 5). Further, it is vital that members are able to work across organizational boundaries. The structure of the team may vary depending on the maturity and mission of the program. For example, during the Engineering and Manufacturing Development (EMD) phase, systems design for operational effectiveness has the biggest impact on life cycle sustainment.

Figure 5. Product Support IPTs are *cross-functional* and include the warfighter[a]




a. Source: [18].

## Requirements

Table 9 contains PSM requirements as of FY 2010. According to these estimates, there are enough life-cycle logisticians in the candidate pool to meet the current PSM requirement. However, there is not much room for personnel attrition or for program expansion in terms of size or numbers.[14]

[14] Bill Kobren, DAU; August 11, 2010.

Table 9. Potential DOD PSM requirements[a]

| Major weapon system program | PSM requirement |
|---|---|
| MDAP | 104 |
| Pre-MDAP | 55 |
| ACAT II | 80 |
| Former ACAT I/II in sustainment | 280 |
| Candidate Pool | ~779 |
| Total requirements | 1,298 |

a. Source: DAU Briefing: DOD Life Cycle Management (LCM) & Product Support Manager (PSM) Rapid Deployment Training, Jun. 2011.

An Air Force logistics expert stated that the Air Force is working to request that the PSM positions be expanded to programs beyond Major Weapon Systems, as mentioned in the new FY10 NDAA Section 805 language. Given that some of the current and potential programs are international, members of the PSM candidate pool may require international acquisition training.

## PSM signals the potential for future expansion of international acquisition responsibilities to other career fields

The PSM position has potential for expansion beyond MDAPs to smaller programs. Since other career field experts besides LCL (e.g., SPRDE, Contracting etc.) would potentially act in the role of program manager, international training would ultimately need to be broadened cross-functionally. Although product support is primarily a logistic and sustainment function, it is not actually synonymous with logistics [14]. For example, product support also "encompasses materiel management, distribution, technical data management, maintenance, training, cataloging, configuration management, engineering support, repair parts management, failure reporting and analysis, and reliability growth" [14]. Thus, Life Cycle Management (LCM), which includes product support, is a "team sport," requiring involvement, engagement, resources, expertise, and support from across the acquisition and sustainment domains—program managers, contracting officers, systems engineers, business and financial managers, and logisticians of varying backgrounds, including, of course, life-cycle logisticians [14]. Logistic SMEs believe that this will result in an even greater need for IA training across the workforce.

## Summary

The LCL test case was chosen at the request of the sponsor based on anecdotal evidence of a need for IA training in the Air Force life-cycle logistician community. Preliminary investigation reveals that it is a good test case for several reasons. First, LCL is the only acquisition career field besides PM that recommends authorized IA training courses

identical to selected courses in the IACP. LCL uses the Core Plus career development system to train workforce members engaged in IA activities. Although the IA course offerings currently recommended for life-cycle logisticians are limited in number and are not particularly tailored to the LCL career field, inclusion of international training is a good first step. Another reason LCL is a good test case is because research has revealed that life-cycle logisticians and program managers typically work side by side in the acquisition environment with similar management and oversight objectives.

The new PSM (identified as a Key Leadership Position) will likely draw from among the best, brightest, and most expert life-cycle logisticians in the workforce. The PSM leads an integrated product team that consists of Government and private-sector functional experts, and should include all appropriate stakeholders, including warfighter representatives. PSMs must also be skilled in managing the IPS elements, at least one of which includes international activities. Furthermore, PSMs may eventually be drawn from other acquisition career fields, potentially increasing the need for IA training across the entire workforce.

# Chapter 4: LCL interviews and training analysis

The results of our analysis follow. We begin by presenting recurring themes based on our interviews with LCL and other IA experts. These interviews are summarized in appendix B. We examine these themes in light of the IA training currently offered through DAU and DISAM (see appendix A). Based on our examination, we determine whether training gaps exist.

During our interview cycle, we completed interviews with the following:

**Career management**

Navy Director, Acquisition Career Management (DACM) and Navy International Programs Office (NIPO)

**Field**

Joint Strike Fighter (JSF) Program Office
Rolling Airframe Missile (RAM) Program Office
Air Force Material Command (AFMC), Eglin AFB
JSF Program Office, Cooperative Program Personnel
AFMC Headquarters, Wright Patterson AFB
Multifunctional Information Distribution System (MIDS) Joint Program Office

**Policy and training**

Office of the Under Secretary of the Air Force International Affairs (SAF-IAPQ)
DAU Director, International Programs
DAU Academic Program Office
DAU Director, Logistics and Sustainment Center

The interviews enabled us to learn more about the activities that are taking place in the IA workforce, gain a better understanding of the security cooperation arena, and identify any major issues that might be addressed through training. Specifically, we discussed the following during each session:

- IA activities
- Current IA staff training options
- Notable IA issues and problems
- IA training needs
- Suggestions for training development

# Recurring themes

***Theme #1 – There is a clear need for specialized IA training for workers in career fields that are involved in international programs.***

All expert interviewees concurred that there is a need for international training. Most interviewees reportedly developed the skills and competencies to perform their IA job functions on the fly. Furthermore, the IA workforce is expanding beyond FMS and DCS, with increasing emphasis on international cooperative partnerships and weapon system interoperability and system sustainment. The greater frequency and variety of IA activities will require more acquisition functional area skill sets and a greater pool of cross-functional experts.

The PMT 202 course (offered through DAU) would likely meet the needs of workforce members either just starting in an international program or in need of a structured IA refresher course. The course, titled Multinational Program Management, presents an overview of the different facets of security cooperation: international armaments cooperation and security assistance; national, DOD, and U.S. policy and regulations; key IA processes; and USG, foreign government, and industry roles and responsibilities.

***Theme # 2 – Technology Transfer and Export Control (TT/EC) should be a mandatory requirement across all defense acquisition personnel working in international programs.***

The interviewees agreed that TT/EC international acquisition training should be mandatory for every employee working international programs, regardless of frequency of activity. TT/EC rules apply to all international activity, whether in the realm of international cooperation or security assistance. The importance of TT/EC was stressed in the 1999 Hamre memo, and remains on the President's list of top priorities for National Security today. To further emphasize the importance of TT/EC training, consider the fact that one small error could mean a serious penalty for the offender in the form of a monetary fine or imprisonment. An international cooperation program office director stated that more in-depth training is needed for long-standing support contracts involving export licensing and technical assistance agreements (TAAs) due to concurrence requirements in these areas. Of course, since TT/EC training is currently offered, the implication for IA training is that the number of course offerings would need to be expanded substantially beyond current capacity to meet the needs of all acquisition career fields. One idea was to include PMT 203 into planned FY12 Level III course offerings as a "choose one of four" option. The following list of courses, offered through either DAU or DISAM, would meet the TT/EC needs of employees engaged in security cooperation activities in either IAC or SA programs:

- CLI 007 (DAU)—Technology Transfer and Export Control Fundamentals Level I Certification
- PMT 203 (DAU)—International Security and Technology Transfer/Control Level II Certification

- IPSR (DISAM)—International Programs Security Requirements Course (3 class days).

***Theme # 3 - A Core Plus approach to specialized IA training may offer an expeditious solution.***

Core Plus is a very feasible training alternative because it represents the least costly, most flexible, and most palatable option to schedulers and DACMs. However, since the requirement and decision to enroll are only between the workforce member and his or her supervisor, Core Plus does not solve the need for mandatory IA training and visibility of workforce members who are actively involved in IA activities.

***Theme #4 – IACP competencies are broad enough to cover the basic IA competency needs cross-functionally but do not address specific functional competencies.***

Most of the experts agreed that the IACP competencies (which are also the foundation for IACP course objectives) are broad enough to sufficiently cover the basic IA competency needs for the LCL career field. Also, many activities in the international arena are common, whether related to IAC or SA. An example of common competencies include those that are applicable to the *IA environment*, such as the ability to identify and assess statutory, regulatory, and policy requirements, and/or the ability to identify, organize, and blend stakeholder needs and requirements. Another example that applies cross-functionally to both IAC and SA includes competencies that are applicable to *strategy and planning for international involvement*, particularly common competencies that involve identifying, employing, and validating technology and security considerations.

The area of strategy and planning also involves common competencies, such as the ability to differentiate between a U.S. strategy and an international strategy, or to plan for and/ or formulate an international strategy. A final example of an application area of common competencies involves *international business processes and tools*. The IAC or SA workforce needs to be knowledgeable about, and able to apply, political-military principles of customer/partner relationship that lead to signed international agreements and LOAs. Further, it must be able to (a) identify IA program contracting impacts, (b) identify and categorize technical capabilities of customers/partners, (c) participate in management and stakeholder processes, (d) develop funding strategies, (e) use management tools, and, (f) at higher skill levels, conduct IA negotiations. In the LCL functional area, however, experts we interviewed emphasized some IA skill areas that were not included in the list of IACP competencies. For example, there needs to be more emphasis on LCL-specific problem-solving skills and specialized functions, such as designing for supportability, system sustainment, international taxes and tariffs, and transportation issues.

***Theme #5 – There is an awareness and communication divide between organizations in the IAC and SA arenas.***

Most of the experts we interviewed pointed out the division between the IAC and SA arenas. The division seems to carry over into the educational and training emphasis of

DAU and DISAM. In terms of actual courses, however, there is considerable overlap, at least in terms of breadth of content. When we talked with experts who were experienced in both IC and SA, they were able to provide more clarity and depth concerning the issue areas discussed, as well as clearer alternatives for solutions. One logistic expert who had experience in both IC and FMS programs indicated that many issues arise from a lack of broad experience and problem-solving skills in partner negotiations that affects both arenas.

Another expert life-cycle logistician admitted that it was difficult to determine the gaps in his IA competency level because his training exposure was only in the SA arena. On reviewing the IACP competencies, he realized that there was some overlap, which then made it easier to identify specific training gaps, such as in the area of transportation. It's notable that, although DISAM's focus is on security assistance, some of the courses appear to blend SA with broader SC topics (see course descriptions in appendix A). DAU's focus is on international cooperation, but DAU interviewees said that the university is expanding the course coverage to include SA topics in future courses, which may be beneficial for the IA workforce. More integrated IA training may serve a secondary purpose of "bridging the gap" between the IAC and SA arenas. The following DISAM courses currently provide overlapping SA and SC content:

- SAM-C (DISAM)—Security Assistance Management (SAM) CONUS Course Certification Level I (9 class days)
- SAM-CM (DISAM) – Security Assistance Management-Program and Case Management Course (5 class days)
- SCM-O (DISAM) – Security Cooperation Management Overseas Course
- IPSR (DISAM)—International Programs Security Requirements Course (3 class days)

***Theme # 6 – There needs to be a greater degree of awareness of organizations involved in IA processes.***

IA experts agree that it's problematic and frustrating to try to untangle the web of IA organizations. A blueprint of organizational chains of command and IA community counterparts would be very useful. An attempt to piece together who's who in the IA world is a major feat for an experienced acquisition professional, much less for a novice. An effective training course would describe the network and roles of organizations, including the military services, DOC, DOS, and DOD agencies, and identify key contacts for each, which would differ by community. The DAU PMT 202 course (Multinational Program Management) provides an overview of U.S. and foreign government roles and responsibilities, agencies, and industry involvement. Nevertheless, a more in-depth course may be helpful.

***Theme # 7 – A full IA career path is not necessary for every career field, although it may be for some.***

The critical question then becomes how training should be structured to meet the needs of the IA workforce and to best use limited training resources. Interviewees proposed a

variety of alternatives that might be used to meet training needs. For example, an introductory IA training session to orient the acquisition workforce to the IA playing field was highly recommended. This alternative could take the form of an acquisition cross-functional mandatory requirement, or it might apply on an assignment-specific basis by supervisor recommendation or employee career development interest. Furthermore, specific topics that were raised during our interviews could be addressed through course lessons at the appropriate career level and be inserted into courses that would be offered as Core Plus options. Another idea was to create an interdisciplinary "Special Qualification" designation in which completing a number of IA (or other functional area specialization) training courses would result in an annotation on the DAU official transcript.

# Other topics and themes

***IA courses need to provide training on U.S. IA processes because, while IA is primarily a U.S. concept, training should also consider both the U.S. and foreign partner perspectives.***

At least one international partner country expert we interviewed indicated that IA is primarily a U.S. concept that is often not familiar to foreign partners. His perspective is that training focused on U.S. IA budgetary processes, laws, and so on, offered to foreign partners through DAU and DISAM, would be beneficial. DISAM offers the courses listed below for internationals and a similar set of courses separately for U.S. participants:

- SAM-IO MASL IIN D178088 (DISAM)—Security Assistance Management International Purchaser Orientation Course (8 class days)
- SAM-I-Training MASL IIN D178262 (DISAM)—Security Assistance Management International Purchaser Training Course (12 class days)
- SAM-IL MASL IIN D178267 (DISAM)—Security Assistance Management International Purchaser Advanced Logistics Course (4 class days)
- SAM-I-Financial MASL IIN D178263 (DISAM)—Security Assistance Management International Purchaser Financial Course (12 class days).

A potential new option would be to create a course designed for roughly equal participation by U.S. and foreign students with the goal that they would learn from one another's perspectives.[15] Expanding training in this direction addresses expert observations that:

> the global role of the United States in the Century ahead will require both breadth and depth. It will demand deep understanding of particular languages and cultures, including those from whence danger might arise, as well as broad, strategic perspectives on the economic and political forces that will shape the world [9].

[15] DAU staff participate in forums designed to share perspectives on international acquisition topics and training (Duane "DT" Tripp, DAU Director, International Programs, March 2011).

***In some IA LCL cases, strong problem-solving skills are essential.***

A logistic expert for a major international program stated that LCL managers need to more closely assess the root cause of issues and problems. Life-cycle logisticians in IA programs require strong problem-solving skills because they are working with different partner requirements, perspectives, and rules. When training is deemed appropriate, realistic case studies would be the best training format for building problem-solving skills as needed within acquisition career fields. The following technology transfer courses tend to be hands-on/application oriented:

- CLI 007 (DAU)—Technology Transfer and Export Control Fundamentals Level I Certification
- PMT 203 (DAU)—International Security and Technology Transfer/Control Level II Certification
- IPSR (DISAM)—International Programs Security Requirements Course (3 class days)

These or similar course formats could be tailored by including case studies to meet the specific needs of a life-cycle logistician or the needs of any other career field in the IA arena.

***Life-cycle logistician roles are sometimes unnecessarily limited or pushed into the background.***

Several IA experts implied that there are sometimes limitations on the role of life-cycle logisticians. However, some believe that life-cycle logistician limitations are self-imposed. Reportedly, life-cycle logisticians have been known to step out of the acquisition process, thinking that the design stage is not really their responsibility. But the LCL role, in particular, involves much more than dealing with parts, supply, repairs, and training. Training may help to reorient life-cycle logisticians to the full scope of their role, and, in doing so, address the concern that the system must be designed for supportability to achieve maximum cost effectiveness. Courses that are already dealing with a particular topic might be able to incorporate a special course lesson to deal with a particular functional area, such as LCL. Life-cycle logisticians in IA programs who become more immersed in sustainment func-tions may require tailored IA training. For example, the following courses, particularly DAU Log 102 or CLL 020, might include a lesson on the international aspects of the ILS elements:

- CLL 016 (DAU)—Joint Logistics
- SYS 279 (AFIT)[16]—ILA Assessors Workshop
- SYS 400 (AFIT)[17]—Current Topics in Acquisition Sustainment
- CLL 020 (DAU)—Independent Logistics Assessments
- LOG 102 (DAU)—System Sustainment Management Fundamentals

[16]Air Force Institute of Technology < http://www.afit.edu/LS/>.
[17]Air Force Institute of Technology < http://www.afit.edu/LS/>.

- LOG 206 (DAU)—Intermediate System Sustainment Management

***Highly integrated functional areas and roles may require similar training.***

Several IA experts pointed out that the life-cycle logistician and program manager can merge into the same role since life-cycle logisticians can become program managers and have dual certification. The co-functioning roles may be even more pronounced with the new PSM position. It may become necessary for PSMs in international programs to complete PM IACP requirements.

Air Force logistic experts stated that more training will be needed for the new PSM positions, which will be occupied by Level III life-cycle logisticians, because life-cycle logisticians are not familiar with some key aspects of the job. Air Force logistic experts are exploring what skills the new PSM role will actually require, and they predict that the position will ultimately need to be expanded beyond the current requirement for Major Weapon Systems to include smaller program needs and requirements.

# Summary

The SMEs we interviewed regarding IA training were from varied backgrounds and functional specialties, experience levels, and positions. Overall, in spite of their differences, there was consensus about the need for formal IA training in the acquisition workforce because IA entails very specific sets of skills and knowledge. Most SMEs said they learned IA skills and competencies on the job. This approach keeps them afloat, but is not without problems and difficulties that could be addressed more effectively through formal training.

The LCL experts we interviewed were particularly helpful because they were able to identify specific problem areas where IA training would enhance LCL job functions. Examples of problem areas include: a lack of guidance about the numerous organizations and their roles and functions; the complexities of dealing with multiple international partners with different rules, regulations, and requirements on the IA playing field; and the lack of understanding within the IA workforce about specific processes (e.g., U.S. budgetary processes).

In addition, changes are being made in job roles and responsibilities, such as the new PSM position, that will make tailored international training all the more necessary in the near future, especially for LCL, the career field that will largely fill the new position. Note that all of the interviewees agree that development of full IA career paths for each career field was probably *not* necessary. Instead, they suggest opening IACP courses as Core Plus options for life-cycle logisticians, and including selected lessons and case studies targeted to life-cycle logisticians.

Most, if not all, interviewees agree on the following themes:

- *Theme #1* – There is clearly a need for specialized IA training for workers in career fields that are involved in international programs.

- *Theme # 2* – Technology Transfer and Export Control (TT/EC) should be mandatory for all those working in international programs.

- *Theme # 3* – A Core Plus approach to specialized IA training may offer an expeditious solution.

- *Theme #4* – IACP competencies are broad enough to cover the basic IA competency needs cross-functionally, but do not address specific functional competencies.

- *Theme #5* – There is an awareness and communication divide between IAC organizagtions and SA organizations.

- *Theme #6* – There needs to be a greater degree of awareness regarding the organizations involved in IA processes.

- *Theme # 7* – A full IA career path is not necessary for each career field, but it is necessary for some career fields.

Other IA themes were notable because they were raised during our interviews and/or they were supported by current literature. For example, one area for consideration that surfaced in the interviews and literature is the need to incorporate international and U.S. perspectives into training and development of international-related job skills. International experts contend that culture, customs, and knowledge of international operations and leadership are some of the key factors for developing international competency. Finally, existing IA training content (e.g., IACP) needs to be expanded to benefit life-cycle logisticians who closely support program managers in IA programs.

Based on our examination of the highlighted, recurring interview themes and topics, and of IA training available through DAU and DISAM, it appears that—in terms of breadth of IA training—the basic foundation of courses is well established. There is potential, however, for deepening IA training by adding specialized topics to existing courses.

# Chapter 5: Systems Planning, Research, Development and Engineering (SPRDE), Systems Engineering (SPRDE-SE), Program Systems Engineer (SPRDE-PSE), and Science and Technology Management (S&T)

In this chapter, we introduce the SPRDE career field and discuss some of the reasons why SPRDE is a good choice for an IA assessment. We describe some of the key job functions and responsibilities of these professionals, and we examine SPRDE in light of defense acquisition workforce communities (e.g., SE, PSE), size, demographics (including service components/agencies), training, and DAWIA certification levels. We then describe some of SPRDE's involvement in international acquisition activities, and available IA training opportunities. In the summary section we highlight key points from the chapter.

## SPRDE IA assessment

The SPRDE career field is undergoing revitalization as it conducts assessments of its workforce capabilities, competencies, and competency gaps, which make incorporating the IA assessment very timely. SPRDE is the largest acquisition career field, and is comprised of members with widely varying qualifications and skills. SPRDE consists of two closely related career paths: the Systems Engineer (SE) and Program Systems Engineer (PSE). Systems engineering is the most highly populated workforce community in SPRDE, followed by the Science & Other Engineering community, and Program Management. Science & Technology Management (S&T), formerly a component of SPRDE, has recently developed into an entirely new career field. S&T is addressed in a later section of this chapter. A primary goal of the newly created SPRDE-PSE career path in particular, is to develop a cadre of more experienced systems engineers that possess cross-disciplinary technical skills grounded in broad-based training. These skills and training will better qualify them for critical senior positions such as Program Lead Systems Engineer or Chief Engineer on both domestic and international programs [20].

A key issue for SPRDE is the well-documented challenge of inadequate early-stage systems engineering, which is a critical entry point for international acquisition considerations. Studies have shown that many systems-level risks in interface and system complexity, requirements stability, technology maturity, software development, and technical leadership could be mitigated by sufficient investments in early-phase systems engineering. As the DOD implements policy changes over the long term, modifications to the required skills and competencies will be required [20].

DOD has adopted the following formal definition for systems engineering, derived from the International Council on Systems Engineering (INCOSE), "Systems Engineering Handbook, A Guide for Systems Life Cycle Processes and Activities:"

> Systems engineering is an interdisciplinary approach and process encompassing the entire technical effort to evolve, verify and sustain an integrated and total life cycle balanced set of system, people, and process solutions that satisfy customer needs. Systems engineering is the integrating mechanism for the technical and technical management efforts related to the concept analysis, materiel solution analysis, engineering and manufacturing development, production and deployment, operations and support, disposal of, and user training for systems and their life cycle processes. Systems engineering develops technical information to support the program management decision-making process. For example, systems engineers manage and control the definition and management of the system configuration (system's technical baseline) and the translation of the system definition into work breakdown structures [21].

DOD describes systems engineering as "the set of overarching processes that a program team applies to develop an operationally effective and suitable system from a stated capability need." For DOD, "systems engineering processes apply across the acquisition life cycle (adapted to each phase) and serve as a mechanism for integrating capability needs, design considerations, design constraints, and risk, as well as limitations imposed by technology, budget, and schedule." Furthermore, DOD asserts that "the systems engineering processes should be applied during concept definition and then continuously throughout the life cycle" [21].

The Defense Acquisition Guidebook further describes systems engineering as

> a broad topic that includes hardware, software, and human systems. It is an interdisciplinary approach for a structured, disciplined, and documented technical effort to simultaneously design and develop systems products and processes for creating and integrating systems (hardware, software, and human) to satisfy the operational needs of the customer. It transforms needed operational capabilities into an integrated system design through concurrent consideration of all life cycle needs. As systems become larger and more com-plex, the design, development, and production of such systems or systems of systems (SoS) require the integration of numerous activities and processes. Systems engineering is the approach to coordinating and integrating all these acquisition life cycle activities. It integrates diverse technical management processes to achieve an integrated systems design [22].

# SPRDE job functions

Systems engineering job functions include but are not limited to:

- Program Manager (and other program personnel)
- Program Executive Officer (PEO) Lead or Chief Systems Engineer
- Program Office Level Lead or Chief Systems Engineer
- Program Office Level Test and Evaluation (T&E) Lead
- Program Office Level Lead Logistics Manager

- Systems Engineering Working-Level Integrated Product Team
- Technical Authority (that is, Functional Leads)

For additional SPRDE SE/PSE job responsibilities by certification level see appendix F.

# SPRDE within the Defense Acquisition Workforce (DAW)

With approximately 36,704 members, the SPRDE (SE/PSE) workforce is the largest defense acquisition career field, constituting 28% of the "organic" DAW (i.e., government and military; excluding contractor support) as of the end of FY2009. As of 2011, the SPRDE workforce has grown to 41,762. (See table 10.) The Secretary of Defense, SPRDE (SE/PSE) DAW growth target for FY 2015 for the career field is 5,400 (16%) [20]. Row 11 of table 10 shows—in gray—the breakdown by service branch.

Table 10: Defense acquisition workforce career fields[a]

| Career Fields | Army | Navy | Air Force | Defense Agencies | FY11 Total |
|---|---|---|---|---|---|
| Auditing | 0 | 1 | 0 | 4,142 | 4,143 |
| Business | 2,860 | 2,584 | 2,118 | 562 | 8,124 |
| Contracting | 8,839 | 6,001 | 7,865 | 7,087 | 29,792 |
| Facilities Engineering | 1,564 | 5,319 | 20 | 8 | 6,911 |
| Industrial/Contract Property Management | 84 | 78 | 28 | 311 | 501 |
| Information Technology | 2,168 | 1,634 | 1,008 | 355 | 5,165 |
| Life Cycle Logistics | 9,285 | 5,332 | 2,704 | 251 | 17,572 |
| Production, Quality & Manufacturing | 2,081 | 2,181 | 404 | 5,061 | 9,727 |
| Program Management | 3,438 | 5,258 | 5,026 | 1,193 | 14,915 |
| Purchasing | 351 | 562 | 145 | 229 | 1,287 |
| **SPRDE** | **10,882** | **19,581** | **9,498** | **1,801** | **41,762** |
| Test & Evaluation | 2,304 | 3,000 | 2,838 | 304 | 8,446 |
| Unknown | 18 | 0 | 5 | 48 | 71 |
| Total | 43,634 | 51,418 | 31,382 | 21,271 | **148,416** |

a. Source: DAU Defense Statutory Acquisition Workforce, Aug. 3, 2011.

The SPRDE (SE) workforce has a very broad, diverse community from different disciplines, education levels and backgrounds/experiences. DAWIA certification requires members to have a technical or scientific baccalaureate or graduate degree (e.g., engineering, physics, chemistry, biology, mathematics, operations research, engineering management or computer science. SPRDE (SE) positions include: systems engineer, project officer, project engineer, scientist, supervising project engineer, or naval architect. There are also

specialty positions such as materials or structures engineer, reliability engineer, designing engineer, or cost engineer. Despite this being a robust and educated workforce, it has been challenging to identify SPRDE (SE) professionals who perform critical systems engineering functions at a program systems integration level. The SPRDE (PSE) career path was created to facilitate building a segment of more experienced systems engineers, who, trained and possessing broad-based, cross-disciplinary technical skills, could serve in critical senior positions (e.g., Program Lead Systems Engineer or Chief Engineer) [22].

Over 98% of SPRDE (SE/PSE) career field members have attained a bachelor's degree or higher. The workforce has achieved DAWIA Certification Levels (Civilian + Military) as follows: Level I or higher (77%), Level II or higher (67%), Level III (54%). For additional breakdowns of the contracting workforce, see table 11.

Table 11: Human Capital Fact Sheet 2009 – Breakdown of the DAW (SPRDE-SE/PSE)[a]

| Human Capital Fact Sheet FY2009 | | | | |
|---|---|---|---|---|
| **Defense Acquisition Workforce (DAW) Systems Planning, Research, Development and Engineering (SPRDE - (Program/Systems Engineering)(SE/PSE)** | **Civilian (Civ) SPRDE - (SE/PSE)** | **Military (Mil) SPRDE - (SE/PSE)** | **Total SPRDE - (SE/PSE) (Civ + Mil)** | **Defense Acquisition Workforce** |
| **Size & Composition** | | | | |
| FY09 Workforce Size | 34,511 | 2,193 | 36,704 | 133,103 |
| Change in size 2008-2009 | 6% | 4% | 6% | 6% |
| Civilian/Military Composition | 94% | 6% | - | 89% / 11% |
| DAW Growth Target 2015 | | | 16% | 15% |
| **Educational Attainment** | | | | |
| Bachelor's Degree or Higher | 98% | 97% | 98% | 79% |
| Graduate Degree | 36% | 46% | 36% | 29% |
| **Certification (Cert)** | | | | |
| Level I or Higher Achieved | 78% | 61% | 77% | 72% |
| Level II or Higher Achieved | 69% | 28% | 67% | 60% |
| Level III Achieved | 57% | 8% | 54% | 36% |
| Position Cert Requirement Met or Exceeded | 66% | 34% | 64% | 59% |
| **Planning Considerations** | | | | |
| % Baby Boomer/Traditional Generations | 55% | 7% | 53% | 58% |
| Average Age | 44.1 | 32.3 | 43.4 | 45 |
| Workforce Life-Cycle Model (YRE) % Future/Mid-Career/Senior | 38/34/28 (%)(Civ) | - | - | 32/33/35 (%)(Civ) |
| Average Years of Service | 15.9 | 8.8 | 15.5 | 16.3 |
| Retirement Eligible | 4,087 (12%) | - | - | 19,395 (16%) |
| Retirement Eligible w/i 5 Years | 5,405 (16%) | - | - | 21,567 (18%) |
| Total Career Field Gains/Losses | 5,662/3,586 | - | - | 19,786/13,042 |
| **Training Statistics** | | **SPRDE SE/PSE 2008** | **SPRDE SE/PSE 2009** | **AT&L 2009** |
| DAU Course Graduates (Classroom) | | 3,651 | 4,172 | 39,568 |
| DAU Course Graduates (Web) | | 13,310 | 17,561 | 154,399 |
| DAU Continuous Learning Completions | | 36,036 | 40,757 | 494,568 |

a. Source: [20].

In alignment with the Defense Acquisition Workforce Improvement Act (DAWIA), 10 USC Chapter 87, Section 1721, DOD Components (Army, Navy, Air Force and other DOD agencies) have designated certain critical acquisition positions within the SPRDE (SE/PSE) career field when their job responsibilities are predominantly acquisition related.

The DAW SPRDE (SE/PSE) is comprised of 34,511 (94%) civilians and 2,193 (6%) military. See additional breakdowns in table 12.

Table 12: SPRDE (SE/PSE) defense acquisition workforce (Civilian/Military) composition[a]

| Defense Acquisition Workforce Civilian/Military Composition SPRDE Career Field (FY09)(SE and PSE Career Paths) | | | | | | |
|---|---|---|---|---|---|---|
| **Acquisition Career Field** | **FY09 Count** | **Count %** | **Civ** | **Mil** | **Civ %** | **Mil %** |
| **Army** | 10,208 | 28% | 10,101 | 107 | 99% | 1% |
| **Navy/Marine Corps** | 18,085 | 49% | 17,884 | 201 | 99% | 1% |
| **Air Force** | 7,197 | 20% | 5,312 | 1,885 | 74% | 26% |
| **DCMA** | 660 | 2% | 660 | 0 | 100% | 0% |
| **DLA** | 16 | 0% | 16 | 0 | 100% | 0% |
| **Other** | 538 | 1% | 538 | 0 | 100% | 0% |
| **Total** | **36,704** | 100% | **34,511** | **2,193** | 94% | 6% |

a. Source: [20].

Position Category Description (PCD) workforce codes enable acquisition positions to be consistently identified throughout the DOD components by occupational series. The highest percentage of civilians (26%) is in the Electronics Engineering (0855) series. The top five series, along with other component breakdowns, are listed in table 13.

Table 13: SPRDE (SE/PSE) (Civilian) workforce by occupational series[a]

| Top 5 Occupation Series (end of FY2009) SPRDE - (SE/PSE) (Civilian) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Occ Series - Description** | **Total** | **Total (%)** | **Cum (%)** | **Army** | **Navy** | **AF** | **Other** |
| 0855 - Engineer, Electronics | 9,398 | 25.6% | 25.6% | 1,999 | 5,506 | 1,702 | 191 |
| 0801 - Engineer, General | 5,648 | 15.4% | 41.0% | 2,280 | 1,596 | 1,172 | 600 |
| 0830 - Engineer, Mechanical | 5,277 | 14.4% | 55.4% | 1,604 | 3,243 | 391 | 39 |
| 0861 - Engineer, Aerospace | 2,876 | 7.8% | 63.2% | 587 | 1,311 | 880 | 98 |
| 0854 - Engineer, Computers | 2,292 | 6.2% | 69.5% | 1,052 | 1,023 | 126 | 91 |

Note: There are 18 records w ith null values for OCC series
#Occ Series in Career Field = 109

a. Source: [20].

# International programs and the systems engineer

The SE job in international programs involves a number of key tasks. The SE classifies systems with foreign parts, identifies sources worldwide, provides guidance for FCT, develops strategies to integrate foreign parts, handles foreign candidate source selection, helps to determine whether to sell off-shore, provides technical oversight of foreign contractors, evaluates interoperability/environmental compliance, and helps manage the program protection plan (including the Technology Assessment/Control Plan).

The SE and the PM work closely together in the acquisition process. This working relationship makes it particularly important for SEs in international program offices to receive international training, especially in cases where they meet the criteria and requirements threshold (i.e., engaged in at least 50% international activities in job function) for the

IACP.[18] Table 14 shows how the roles of the program manager and the program systems engineer relate within the context of system life-cycle processes.

Table 14: The role of Systems Engineering in System Life-Cycle Processes[a]

| Life-cycle Processes | Program Manager | Chief/ Systems Engineer |
|---|---|---|
| Stakeholder Management | Primary | Support |
| Technical Planning | Support | Primary |
| Decision Analysis | Primary | Support |
| Technical Assessment (Includes Program Status: Technical Progress, Schedule & Cost Management) | Shared | Shared |
| Configuration Management | Primary | Support |
| Data Management | Primary | Support |
| Requirements Management | Support | Primary |
| Contract Management | Primary | Support |
| Requirements Analysis | Support | Primary |
| Architecture Design | Support | Primary |
| Implementation | Support | Primary |
| Risk Management | Primary | Support |
| Interface Management | Support | Primary |
| Integration | Support | Primary |
| Verification | Support | Primary |
| Validation | Shared | Shared |

a. Source: [21].

Systems engineering processes are most effective when started early and applied continuously across the system life cycle. Life-cycle management encompasses the following concepts:

- Single point of accountability
- Evolutionary acquisition
- Modifications and upgrades
- Supportability and sustainment as key elements of performance:
    - Performance-based strategies, including logistics
    - Increased reliability, improved maintainability, and reduced logistics footprint
    - Continuing reviews of sustainment strategies

The cost to implement a system change increases as a program moves further along the system life cycle. Thus, the greatest flexibility exists in the early stages of development, before decisions have been implemented into detailed designs. Early in the life cycle,

[18] Discussion with the Army DACM representative Mr. Craig Spisak, September 7, 2011

thorough analyses of life-cycle cost-reduction design practices and cost/performance trade-off studies can result in a balanced design that prevents costly changes later in the life cycle.

# Design considerations in international acquisition

Design considerations are a major component of the overall acquisition process, including within IA. The importance of international engagement in the process is reflected in U.S. policy in the belief that international acquisition is a two way street and that opportunities to benefit from cooperation abound. Accordingly, current DOD policy and policymakers encourage international cooperation in acquisition [23]. Because SPRDE plays a critical role in design considerations for IA programs, in this section we take a closer look at the engineering role.

An important aspect of design consideration is to examine how to incorporate foreign requirements or technology into the acquisition process. More precisely, an acquisition program is generally defined by decisions made during the *Materiel Solution Analysis* and *Technology Development* phases of Pre-Acquisition. According to acquisition experts, the decision to include international partners should be addressed early in the process, preferably during development of the Initial Capabilities Document, and no later than the Materiel Solution Analysis phase. Analysts note that major changes that occur once the program enters the Engineering and Manufacturing Development phase lead to difficult challenges involving significant schedule or cost adjustments. Furthermore, the Defense Acquisition Guidebook states:

> During Engineering and Manufacturing Development, key elements of the system design are defined, and system/subsystem development begins. Major changes often present schedule delays that program managers are unwilling to accept; however, there have been numerous examples of successful subsystem cooperative development partnerships that have been formed during the Engineering and Manufacturing Development Phase. Once a program has reached this phase absent cooperation in earlier stages, there will be only limited opportunity to bring other nations on as full cooperative development partners [24].

As an example, *spectrum management* is one of the many important international design considerations for systems engineers. It is DOD policy to actively support U.S. policies and interests in international spectrum bodies and in international and bilateral negotiations for spectrum allocation and use [25].

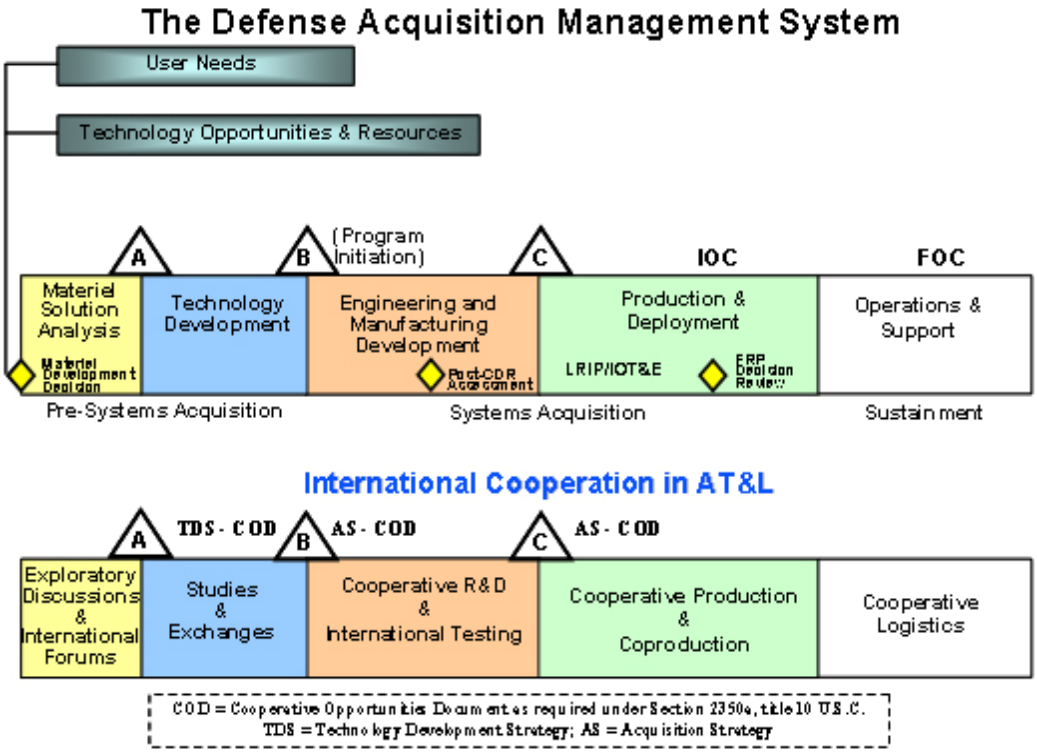
The policy requires that DOD Components comply with U.S. and host nation (HN) spec-trum regulations and obtain applicable authorizations before operating spectrum-dependent (S-D) systems. Furthermore, DOD Components must obtain U.S. Government (USG) certification of spectrum support, prior to authorization to operate for experimental testing, developmental testing, or operations of S-D systems in the United States and its possessions (US&P). USG certification of spectrum support must also be obtained prior to sub-mission of cost estimates (i.e., prior to Defense Acquisition System Milestone B for development or procurement of major S-D systems, and for all

space and satellite systems). Some HNs require their own certification before providing authorization to operate. Policy dictates that DOD Components determine if there will be sufficient spectrum for all S-D systems to support operation of the system during its life cycle. In addition, in order to affect design and procurement decisions, DOD Components must: (1) Identify spectrum-related risks as early as possible via spectrum supportability risk assessments; (2) Review these assessments at acquisition milestones; (3) Manage the risks throughout the system's life cycle.

A SPRDE SME emphasized the importance of early design considerations using the example that, due to the B2 radar failure to get spectrum clearance, $1.2 Billion was the extremely high cost to fix it.

In some cases, sound business judgment may justify the establishment of an international program at any point in the defense acquisition management system. Figure 6 depicts the key considerations for each phase.

Figure 6. Defense Acquisition Management System[a]

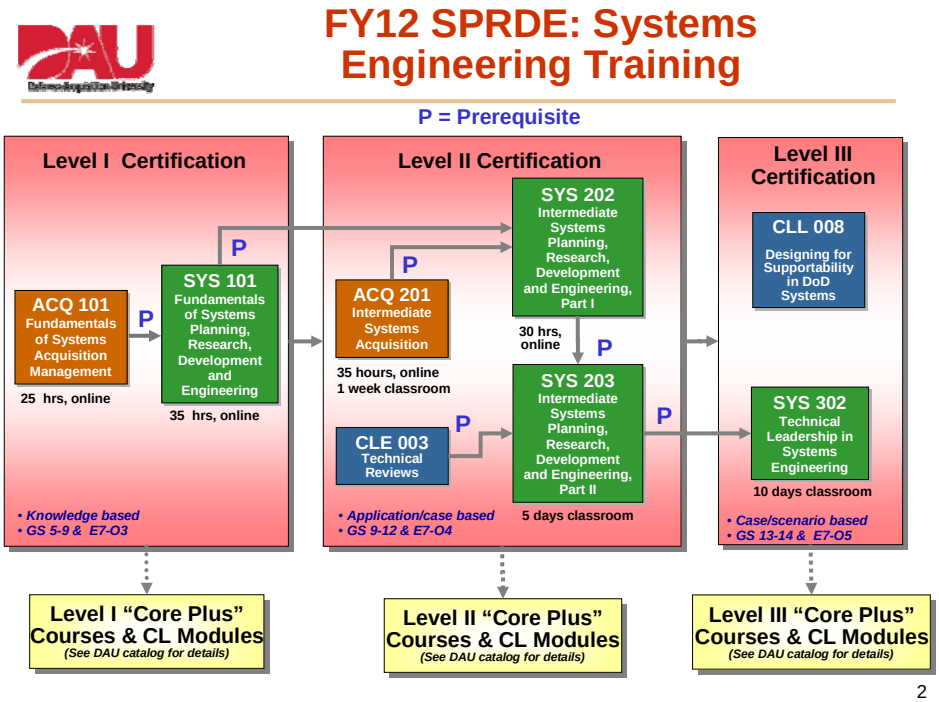



a. Source: [24].

# Current DAU training curriculum for SPRDE (SE/PSE)

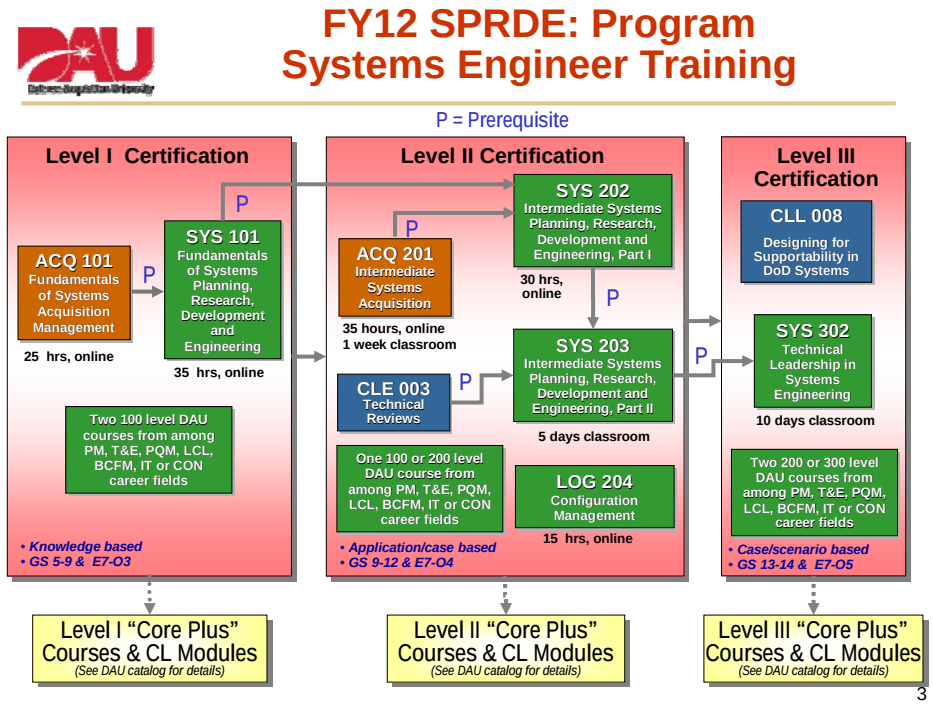
Figure 7 and figure 8 list FY12 training certification requirements for SPRDE – Systems Engineering and Program Systems Engineering.

Figure 7. SPRDE SE training[a]




a. Source: DAU Program Learning Director, SPRDE (SE/PSE), October 2011.

Figure 8. SPRDE PSE training[a]




a. Source: DAU Program Learning Director, SPRDE (SE/PSE), October 2011.

# IA training opportunities for SPRDE (SE/PSE)

DAU has recently incorporated an international lesson – *Design Considerations* – into the SPRDE SYS 302 Technical Leadership in Systems Engineering. The SYS 302 course is designed to develop top-level SE management skills and critical thinking, using a mix of classroom instruction and hands-on learning. Level II certification in SPRDE SE or SPRDE PSE is a SYS 302 course requirement [23].

SYS 302, Lesson 05, reviews key design considerations that impact system development and focuses on: environment, safety and health, human systems integration, international cooperation, program protection planning, and spectrum management. The class format allows students to form workgroups, research different design consideration topics, and brief the class on what they've learned. Students are encouraged to select first from a subset of important design consideration topics that include: Human Systems Integration, Environmental, Safety and Occupational Health, Spectrum Supportability, International Cooperative Opportunities, and Program Protection & System Assurance. The flexibility of this lesson format allows students to focus on international design consideration as needed.

SYS 302, Lesson 05, addresses the following *international acquisition* related topics:

- Reasons for Cooperation
- Forms of International Programs
- Defense Acquisition Policy (5000.01, 5000.02)
- Cooperative Opportunity Assessment
- Building Blocks of International Cooperation
- International Program Comparison
- What Governs International Activities
- Export Control Authority
- Technological Reality Today
- Information Exchange
- Defense Data Exchange Program
- International Programs and the Systems Engineer
- Challenges of National Objective Differences
- Challenges of Programmatic Issues
- Challenges of Cultural Differences

# SPRDE Science and Technology (S&T) Manager

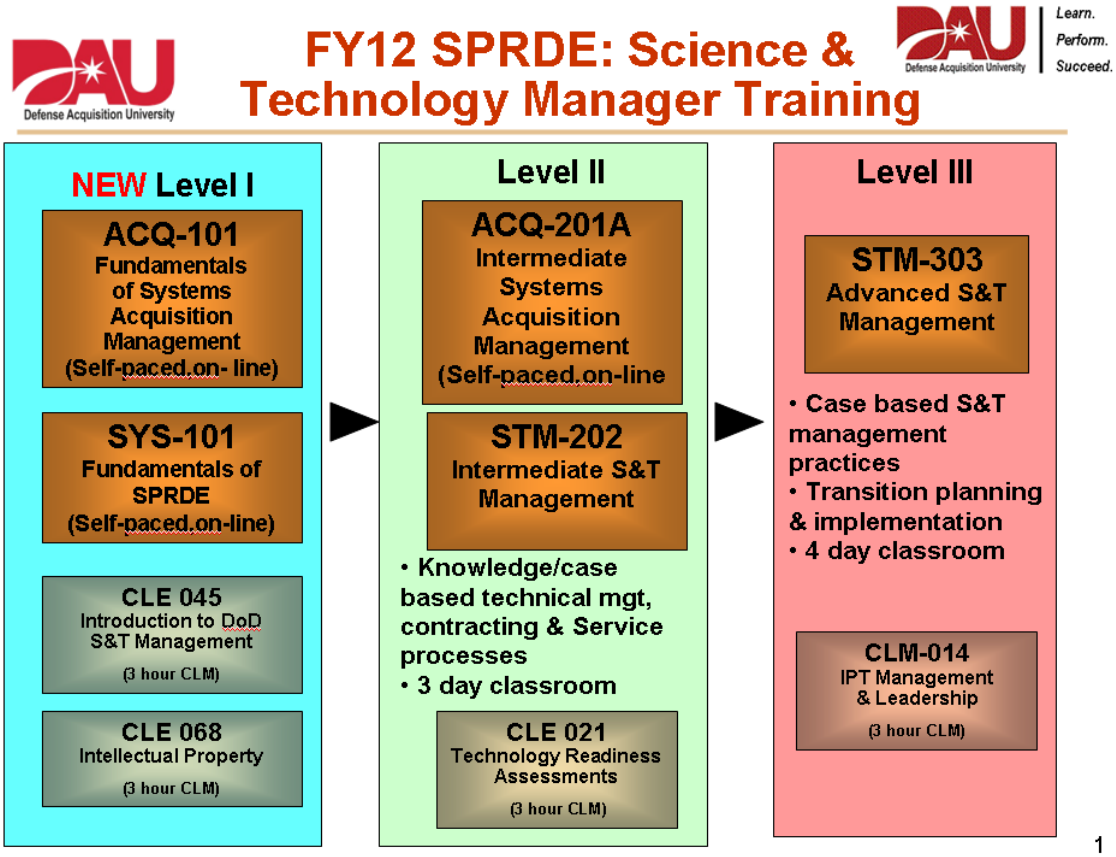
The S&T Management career field is a newer acquisition career field. We include it here because it was formerly a component of the Systems Planning, Research, Development and Engineering career field. As of January 2011, the S&T Management career field was comprised of 691 employees. Specifically, there were 241 Army personnel, 303 Navy personnel, 19 Air Force personnel, and 128 4$^{th}$ Estate personnel [26].

The role of the S&T manager is to conduct, and/or monitor science and technology activities, including basic research, applied research, and/or advanced technology development in support of acquisition programs. As the career progresses, the S&T manager (Level II) must be able to organize the basic activities as well as provide support to acquisition program managers. At the advanced level (Level III), the S&T manager leads and manages science and technology activities, including basic research, applied research, and/or advanced technology development, and may provide direct support to acquisition managers [27].

## Current DAU training curriculum for S&T Management

As in the case of SPRDE (SE/PSE), S&T Manager certification curriculum through DAU has a limited number of courses and none specifically designated as IA related. SPRDE S&T Management courses are included in figure 9.

Figure 9. SPRDE S&T Manager Training[a]




a. Source: DAU Program Learning Director, SPRDE (SE/PSE), November 2011.

## International programs and S&T Management

One of many international applications for S&T Management is *technology transition planning*. A useful description of technology transition planning is found in Section 255 of the FY 2006 Defense Authorization Act. The Act directed the DOD to:

*Assess barriers, regulations and processes impacting the ability to transition technology from science and technology into acquisition.*

Transition decisions are best made during the materiel solution analysis phase early in the acquisition program. Transition planning requires an early understanding of the capabilities planning process, up front planning for identification and integration of critical technology into the system, planning for technology that requires development, and allows time for matching of the technology development schedule with the system development schedule. If the acquisition program involves transfer to/from international entities, the issues become more complex and must be coordinated with multiple partners.

There are also particular programs that facilitate international transitions, such as Foreign Comparative Testing (FCT). FCT entails the test and evaluation of mature technologies and equipment developed by foreign partners (non-developmental, COTS items). FCT enhances interoperability with coalition partners through shared technology and the goal is to "Test to Procure," provided the testing is successful [27].

The most obvious international application of transition planning involves technology transfer (T2), which is defined as:

> *the intentional communication of knowledge, expertise, facilities and equipment, and other resources for application to military and non-military systems* [27].

T2 activities include:

- Spin-off activities demonstrating commercial viability of DOD-developed technologies
- Spin-on activities demonstrating national security utility of technologies developed outside DOD
- Dual-use science and technology that develops technologies having both defense and non-defense applications [27]

# S&T Management and international training opportunities

Similarly to the SPRDE workforce, international training is almost inherent to S&T Man-agement due to the rapidly advancing nature of technology development worldwide. As mentioned earlier, technology transfer is an obvious and critical international training application. The DAU Science Technology Manager (STM) 202 course has many instances of international topics embedded within the lessons. Various international activities and concepts, including technology transfer, are discussed in Lesson 4, *Transition Planning*. In addition, one of the learning objectives of Lesson 6, *Technical Planning*, is to "Recognize the key issues of international cooperation and technology security" [27]. The section of Lesson 6 titled, *International Cooperation and Technology Security Considerations*, provides a brief overview of the following topics:

- Reasons for Cooperation
- International Traffic in Arms Regulation (ITAR)
- Building Blocks in International Cooperation
- Defense Sales
- International Armaments Cooperation
- What Governs International Activities
- Technology and Tech Data Exchange
- Defense Data Exchange Program
- The Technical Cooperation Program
- National Security Decision Directive 189
- Critical Program Information (CPI)
- Research and Technology Protection
- Program Protection Plan (PPP)/Anti-Tamper
- Military Critical Technologies List
- Technology Security Summary

In Lesson 9, Business Planning, international related discussion topics include: technical data rights, Federal Acquisition Regulation/Defense Federal Acquisition Regulation (FAR/DFAR), Cooperative Agreements, and Cooperative Research and Development Agreement (CRADA).

Additionally, each lesson/topic discussion also provides points of contact (POCs) and weblinks to access for additional information.

# Summary

As the largest acquisition career field, SPRDE engineers work closely with program managers, product support managers, life cycle logisticians and others to achieve management objectives and oversight on the integrated product team (IPT) in the early phases of acquisition programs, including international acquisition. SPRDE has recently recognized the need for international acquisition training and has begun to incorporate international content into the Design Considerations lesson of SYS 302. Unlike the LCL case, to date, SPRDE leadership has not recommended any specific Core Plus international courses to the workforce. However, SPRDE leaders are open to new training topics and curriculum as appropriate, when recommended by the FIPT.

The new S&T Management career field was once a community within SPRDE but has recently begun to develop as a separate career field. Many S&T functions include international activities, and IA is reflected in S&T training courses. In particular, S&T emphasizes issues involving technology transfer/export control and data rights, which are major training areas within IA. However, unlike SPRDE, none of the courses or lessons have been specifically designated or highlighted as IA-related.

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# Chapter 6: Contracting

In this chapter we introduce the Contracting career field and discuss some of the reasons why Contracting is a good choice for an IA assessment. We describe some of the key job functions, roles, and responsibilities among these professionals. We also examine Contracting as part of the defense acquisition workforce in terms of size, demographics (including service components/agencies), training, and DAWIA certification levels. We discuss contracting activities in the acquisition workforce, available training opportunities, international applications, and IA training. Lastly, in the summary section, we highlight key points from the chapter.

## Contracting IA assessment

The Contracting workforce, the second largest acquisition career field, contributes to the successful acquisition and management of major weapon systems, services, and other equipment and support systems required to respond to military challenges. Like other acquisition workforce career fields, the contracting workforce is also undergoing assessments of skills and competencies in efforts to strengthen and sustain critical mission capability. It's prudent to also conduct an international acquisition training needs assessment during this workforce analysis and revitalization phase. The workforce mission imperatives include: support of about 102 major acquisition programs many of which are international or have elements including sales; recapitalization of equipment and systems used to support global contingency operations; an expanded and evolving expeditionary requirement including contingency operation surge; domestic and overseas humanitarian support; services across all support domains; and modernization and other new system requirements [28].

Specific contracting professionals possess warrant authority to enter into, administer, and terminate acquisition contracts on behalf of the Government. These professionals must be educated and trained in many complex subject areas such as business decisions, mission support, legal considerations, and cost analysis and negotiations techniques. They must also be prepared to perform functions in support of systems acquisition including *all* ACAT programs, some of which are international [28].

As an integral part of the acquisition team, contracting professionals work alongside program managers, engineers, life-cycle logisticians, and other key players to perform and support acquisition planning, procurement of supplies and services (including construction, research and development); conduct cost and price analysis; issue solicitations, and select sources; negotiate, award and modify contracts; and conduct all phases of contract management to ensure successful delivery of supplies and services.

# Contracting job functions

Contracting workforce members execute critical functions across a range of mission domains that include: Major Systems Acquisition, Logistics and Sustainment, Base Operations, Architect and Engineering/Construction, Research and Development, and Contracting in an Expeditionary and/or Combat Environment [28].

More specifically, contracting responsibilities include[19]:

- Contracting functions in support of post, camp or stations
- Research and Development Contracting functions in support of research and development
- System acquisition contracting functions in support of systems acquisition to include all ACAT programs **(*Job activities most applicable to IA*)**
- Logistics & Sustainment Contracting functions performed by the Defense Logistics Agency or by other offices to sustain weapon systems
- Construction/ A&E Contracting functions in support of construction and/or architect and engineering services
- Contingency/ Combat Ops Contracting functions performed in a contingency or combat environment
- Contract Admin Office Contracting function is primarily focused on contract administration
- Contract Cost/Price Analyst Contracting function is primarily focused on advanced cost/price analysis
- Small Business Specialist Contracting function is primarily focused on advising small businesses or on strategies for maximizing use of small businesses
- Other Contracting functions that perform a variety of assignments or are at a headquarters, secretariat, or OSD

## Distinguishing the roles of contracting professionals

### *Contracting Officer*

A "Contracting Officer" (KO) is a service member or DOD civilian with legal authority to enter into, administer, and/or terminate contracts [29]. The authority is derived from a certificate of appointment. While certain authorities are delegable to others, the authority to legally obligate the Government is not.

The three different types of KOs are distinguished by their roles and agency procedures:

1. The Procurement Contracting Officer (PCO) handles all planning and contract actions up to award of a contract.

[19] DAU online catalog, Contracting http://icatalog.dau.mil/onlinecatalog/CareerLvl.aspx?lvl=2&cfld=3

2. The Administrative Contracting Officer (ACO) assumes responsibility for administering the day-to-day contractual activities after award has been made.
3. The Termination Contracting Officer (TCO) is responsible for negotiating any termination settlements with the contractor.

Sometimes all three responsibilities reside in one person.

***Contracting Officer's Representative***

A "Contracting Officer's Representative" (COR) is an individual designated in accordance with subsection 201.602-2 of the Defense Federal Acquisition Regulation Supplement and authorized, in writing, by the contracting officer to perform specific *technical or administrative functions* [29].

CORs do not have the authority of a KO. Though authority varies for different contracts and organizations, CORs must never [29]:

- Effect any changes in the work required under the contract
- Enter into any agreement that has the effect of changing the terms and conditions of the contract or causes the contractor to incur costs
- Supervise, direct, or control contractor employees

# Contracting within the DAW

As the second largest functional community within the DAW, Contracting has approximately 27,655 members, 21% of the "organic" (i.e., government and military; excluding contractor support) workforce as of FY09. As of August 2011, the most recent count is 29,792 (see table 15). The Secretary of Defense Contracting DAW growth target for FY 2015 for the career field is 23% [28]. Row 3 of table 15 shows—in gray—the breakdown by service branch.

Over 83% of the career field members have attained a bachelor's degree or higher. The workforce has achieved DAWIA Certification Levels (Civilian + Military) as follows: Level I or higher (76%), Level II or higher (66%), Level III achieved (33%) [28].

In alignment with the DAWIA, 10 USC Chapter 87, Section 1721, DOD Components (Army, Navy, Air Force and other DOD agencies) have designated certain critical acquisition positions within the contracting career field for those whose job responsibilities are predominantly acquisition related (see table 16). In 2009, the DAW for Contracting was comprised of 23,752 (86%) civilians and 3,903 (14%) military [28]. In FY11, the workforce total was 29,792.[20]

[20] DAU Defense Statutory Acquisition Workforce, Aug. 3, 2011.

Table 15: Defense acquisition workforce career fields[a]

| Career Fields | Army | Navy | Air Force | Defense Agencies | FY11 Total |
|---|---|---|---|---|---|
| Auditing | 0 | 1 | 0 | 4,142 | 4,143 |
| Business | 2,860 | 2,584 | 2,118 | 562 | 8,124 |
| **Contracting** | **8,839** | **6,001** | **7,865** | **7,087** | **29,792** |
| Facilities Engineering | 1,564 | 5,319 | 20 | 8 | 6,911 |
| Industrial/Contract Property Management | 84 | 78 | 28 | 311 | 501 |
| Information Technology | 2,168 | 1,634 | 1,008 | 355 | 5,165 |
| Life Cycle Logistics | 9,285 | 5,332 | 2,704 | 251 | 17,572 |
| Production, Quality & Manufacturing | 2,081 | 2,181 | 404 | 5,061 | 9,727 |
| Program Management | 3,438 | 5,258 | 5,026 | 1,193 | 14,915 |
| Purchasing | 351 | 562 | 145 | 229 | 1,287 |
| SPRDE | 10,882 | 19,581 | 9,498 | 1,801 | 41,762 |
| Test & Evaluation | 2,304 | 3,000 | 2,838 | 304 | 8,446 |
| Unknown | 18 | 0 | 5 | 48 | 71 |
| | 43,634 | 51,418 | 31,382 | 21,271 | **148,416** |

a. Source: DAU Defense Statutory Acquisition Workforce, Aug. 3, 2011.

Table 16. Contracting defense acquisition workforce (Civilian/Military) composition[a]

| Defense Acquisition Workforce Civilian/Military Composition Contracting Career Field (FY09) | | | | | | |
|---|---|---|---|---|---|---|
| Acquisition Career Field | FY09 Count | Count % | Civ | Mil | Civ % | Mil % |
| Army | 8,391 | 30% | 7,741 | 650 | 92% | 8% |
| Navy/Marine Corps | 5,516 | 20% | 4,336 | 1,180 | 79% | 21% |
| Air Force | 7,443 | 27% | 5,370 | 2,073 | 72% | 28% |
| DCMA | 2,262 | 8% | 2,262 | 0 | 100% | 0% |
| DLA | 3,050 | 11% | 3,050 | 0 | 100% | 0% |
| Other | 993 | 4% | 993 | 0 | 100% | 0% |
| Total | **27,655** | 100% | **23,752** | **3,903** | 86% | 14% |

a. Source: [28].

According to the DAWIA, 10 USC Chapter 87, Section 1724, contracting officers must meet minimum training, education and experience requirements. Position Category Description (PCD) workforce codes enable acquisition positions to be consistently identified throughout the DOD components by occupational series. In 2009, the contracting civilian workforce in the functional career field was primarily represented (21,639 or 78 percent) by contract specialist (1102) occupational series. All members of the GS-1102 (contract specialist) occupational series must meet minimum education requirements. The top five series, along with other component breakdowns, are listed in table 17.

Table 17. Contracting (Civilian) workforce by occupational series[a]

| Top 5 Occupation Series (end of FY2009) Contracting (Civilian) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Occ Series - Description | Total | Total (%) | Cum (%) | Army | Navy/MC | AF | Other |
| 1102 - Contract Specialist | 21,639 | 78.2% | 78.2% | 6,307 | 4,266 | 5,261 | 5,805 |
| 0810 - Engineer, Civil | 825 | 3.0% | 81.2% | 821 | 4 | 0 | 0 |
| 1101 - Business and Industry Specialist | 726 | 2.6% | 83.9% | 288 | 28 | 10 | 400 |
| 0301 - Administration & Program Staff | 125 | 0.5% | 84.3% | 97 | 1 | 14 | 13 |
| 1199 - Business and Industry Student Trainee | 94 | 0.3% | 84.6% | 28 | 0 | 31 | 35 |

Note: There are 8 records with null values for OCC series
#Occ Series in Career Field = 74

a. Source: [28].

# International Contracting within the acquisition workforce

It is important to emphasize that KOs, CORs and other contracting professionals belong to a large functional workforce and only a relatively *small subset* of the workforce is involved in international acquisition, typically for major acquisition system programs.[22] This is one of the main reasons contracting SMEs cited for resistance to formal IA training in the career field. However, KOs such as contract procurement officers are substantially involved in the acquisition processes for major weapon systems programs. For example, along with expert members of other career fields, including PM, SPRDE, and LCL, they may provide expertise on international integrated product teams (IPTs). Also in the arena of international contracting, non-U.S. sources compete for DOD business and play a significant role in performing DOD contracts, as both prime contractors and subcontractors.[23]

Furthermore, international access to the U.S. defense market is complicated by many laws and rules that prevent or discourage DOD use of non-U.S. products (e.g., Berry Amendment restrictions, Buy American Act, and Small Business Act preferences). Many policies, rules and laws prevent or impair the ability of non-U.S. entities to perform defense work (e.g., national disclosure policy, export controls on information and technology).

A key to good contracting relationships between foreign defense markets and U.S. industry partners desiring access to leading edge technology is *reciprocity*, which requires openness and transparency. Currently, the Defense Procurement and Acquisition Policy (DPAP) international contracting staff works to facilitate implementation of U.S. laws and Department policies affecting foreign participation, while maintaining constructive relationships with foreign partners [30]. Enhanced relationships may potentially be fostered through international/cultural education and training.

[22] This point was emphasized during an interview with the DAU Director, Contracting, September 23, 2011.
[23] Information accessed through the DPAP website at http ://www.acq.osd.mil/dpap/cpic/ic/about.html

# IA training opportunities for contracting

Although the DAWIA Sections 1721 and 1724 require extensive training for contracting professionals, there are no formal *international training* requirements. In fact, FAR Fundamentals – CON 090, is the only course currently available that was mentioned by SMEs as having international related content. This content mostly related to laws and rules that prevent or discourage DOD use of non-U.S. products and those that prevent or impair the ability of non-U.S. entities to perform defense work.[24] (See the paragraph in the previous section on international contracting.) CON 090 consists of a four-week, resident, foundational course for new hires that provides a total immersion into the FAR (Parts 1-53) and the Defense Federal Acquisition Regulation Sup-plement (DFARS). The course emphasizes successful acquisition workforce operation in a web-enabled environment. The course also teaches students how to analyze contracting busi-ness scenarios developed through research of the FAR and its supplements. Students are familiarized with FAR, parts 1-53, and take daily quizzes to reveal knowledge of these parts of the FAR. They also learn from lecture/lesson content, and homework assignments. The course contains four modules: Contracting Overview; Contract Planning; Contract Formation; and Contract Management.[25]

Like all other acquisition career field professionals, contracting professionals can avail themselves of various DAU continuous learning modules. Currently available continuous learning international (CLI) modules include: CLI 001, CLI 002, and CLI 003, International Armaments Cooperation (IAC) Parts 1-3; CLI 004, and CLI 005, Information Exchange Program (IEP) RDT&E courses; and CLI 007 a Technology Transfer and Export Control Fundamentals course. In addition, Continuous Learning Contracting (CLC) 027 Buy American Act and CLC 125 the Berry Amendment courses are currently available. Continuous learning course offerings are subject to change frequently.

## Contracting Fundamentals – CON 115

CON 115 is a new distance learning (DL) course under development that builds on the foundational elements offered by CON 090. The new course will contain three modules: Acquisition Planning and Developing the Customer's Requirement; Mission Strategy Execution; and Mission Performance Assessment. Students learn their role as a business advisor in the acquisition process, basic mission support planning strategies, how to research the FAR and DFARS, how to conduct effective market research, how socioeconomic programs support the acquisition planning process, and how to execute acquisition planning through solicitation and contract award. Emphasis is placed on the benefits of early industry involvement in shaping requirements, and on basic procedures for acquisition of commercial and noncommercial requirements. Students are taught how to conduct basic competitive acquisitions, how to process awards, how to handle protests before and after contract award, how to identify and evaluate contractor performance metrics and

[24] In addition, CLC 050 - Contracting with Canada, was once offered but is no longer available.
[25] See the DAU Online Course Catalog for contracting<http://icatalog.dau.mil/onlinecatalog/courses.aspx?crs_id=1684>

performance remedies, how to process contract changes, how to handle disputes, and how to close out completed contracts. This course might present a good opportunity for introducing some general international training concepts to build awareness and enhance career planning.

Until CON 115 is fully developed, DAU has listed some suitable predecessors that are available through 2013:

- CON 110 (DL) Mission-Support Planning
- CON 111 (DL) Mission Strategy Execution
- CON 112 (DL) Mission-Performance Assessment
- CON 120 (Resident) Mission-Focused Contracting

# Contracting IA training initiatives

DISAM is examining FMS related training resources available for acquisition/contracting personnel. Currently, no specialized/targeted training tool/module/course exists to prepare contracting officers to work with FMS/pseudo-FMS requirements [31].

Nevertheless, DISAM is in the process of developing a FMS Contracting Module. The plan is to offer either a short-term DISAM course or a long-term DAU hosted course supported by a DISAM SME. More specifically, the course would be a FMS/Pseudo case contract writing module for Contracting Officers. A DAU continuous learning module is thought to be the most feasible format for the course [31].

DAU has a structure and process in place for identifying training needs (i.e., outcome competencies approved by applicable FIPTs), and for developing and validating new curriculum. Additionally, DAU has selected standards and formats for curriculum delivery. The proposed two-phased development approach for inserting FMS issues into contracting training is as follows [31]:

In the first phase, DISAM will bolster its existing online introductory FMS curriculum with curriculum focused on contracting officer FMS/pseudo-FMS issues. DISAM has its own process for developing curriculum but may coordinate with DAU SMEs. This initiative is slated to get under way in FY12 [31].

In the second phase, the course would be incorporated into the DAU/DAWIA structure by way of the IACP for the contracting career field [31].

# Summary

As the second largest career field, Contracting was chosen because of its perceived critical role in the acquisition process, particularly with respect to major weapon systems programs, a subset of which are international. COs may work closely with program managers,

product support managers, engineers, and others, to achieve management objectives and oversight on the integrated product team (IPT) in the early phases of an international acquisition program. However, the contracting career field has not formally identified specific international acquisition related courses for the workforce, but rather has trained contracting professionals on-the-job. Unlike the LCL case, to date, contracting leadership has not recommended any Core Plus international courses to the workforce. DISAM is currently spearheading (possibly with DAU support) a new initiative to address the training needs of contracting professionals who are working *pseudo-FMS* cases. Contracting leaders are open to considering training alternatives that would benefit the workforce, but believe that *flexibility* and *timing* based on assignment is the key to developing effective and efficient training for the workforce. Further, they report that continuous learning modules, some of which offer international training, have always been open to all career fields, yet they recognize the need to provide more guidance and clarification about course relevance to the workforce assignment.

# Chapter 7: SPRDE and contracting interviews and training analysis

Phase II of the IA study included interviews with SMEs for Contracting and SPRDE. We found that although some SMEs currently work in the Contracting or SPRDE career field, many often had prior experience and certifications in other career fields including PM and LCL. As a result, many SMEs were able to provide valuable cross-functional input. Our study team completed interviews with the following subject matter experts:

***Career Management***

Deputy DACM and staff, Secretary of the Air Force/Acquisition Career Management SAF/AQH
Deputy DACM and staff SME, Army
4th Estate DACM Office

***Field***

Joint Program Office (JPO) Director and staff, AV-8B V/STOL Harrier (NAVAIR)
Director, International Programs, Navy International Program Office, NIPO
Program Manager (Acquisition Officer) Warner Robins AFB
Program Manager (Engineering) Warner Robins AFB
Procurement Contracting Officer (PCO), MIDS Program Office, SPAWAR
Contracting Officer, Rolling Airframe Missile (RAM)
Contracting SME, DCMA Contract Administration Services (CAS)
Director, Air Force Security Assistance Center (AFSAC) schoolhouse, Wright Patterson AFB
Security Assistance Program Manager (SAPM), AFMC Warner Robins Air Logistic Center (ALC)

***Policy and training***

DISAM Commandant
SPRDE Program Learning Director and staff SME, DAU
Contracting Director and staff SME, DAU
Contracting SME, Defense Procurement and Acquisition Policy (DPAP), Contract Policy and International Contracting

## Recurring themes

In this section, we present recurring themes based on our Phase II interviews with Contracting, SPRDE, PMs and other experts. Since there were so many themes, we use broad categories to combine similar thoughts. We highlight comments that were made with a particular career field (SPRDE, Contracting) in mind. The interviews are summarized in

appendix B. Again, we examine the themes in the light of current DAU and DISAM training (see appendix A). Based on our examination, we determine whether training gaps exist.

## High-level themes

***Theme #1 – There is limited awareness about IA training opportunities and applications.***

Formal international training has been, at best, minimal and limited among acquisition career paths, and, at worst, virtually non-existent. Members of some career fields (i.e., Contracting, Engineering) are not aware that international training is available and may possibly be beneficial to them. Although some courses may be accessible through the websites, the DAU PM IACP and DISAM IACP generally address very specific audiences and have classroom size limitations.

***Theme #2 – IA may only apply to a small subset of some workforce communities, making a wider requirement difficult to justify.***

Although it is difficult to justify international training for an entire career field when only a few individuals work international issues, training should nevertheless be made available for those who need it. This is especially true for technology transfer and export control training, which is needed for anyone working international.

With the exception of a small subset, most CORs are not in the acquisition workforce. Likewise, most CORs are not working international programs, which are, for the most part, Major Weapon Systems programs. CORs are technical experts assigned to local contracting offices who primarily handle "buying of services" and construction activities. CORs are not included in the workforce count as part of the contracting acquisition career field.

Roughly 1 in 4 CORs are involved with Major Weapon Systems and, of those, maybe 1 in 3 are in international programs.

***Theme #3 – IA training needs to be coordinated between DISAM and DAU.***

As the major training organizations, DISAM and DAU have valuable resources that should be combined in order to eliminate redundancy and provide the most beneficial international training opportunities to the acquisition workforce. While current international training through DAU and DISAM serves different limited needs well, ideally these organizations would coordinate training resources. Furthermore, DISAM IACP (International Affairs Certification Program) and DAWIA certifications are not interchangeable, but should be.

The schools have different roles in training and all add value. DAU focuses on international cooperation and research and development. DAU training is broad,

and serves as a good overview or refresher for a smaller subset of the IA workforce. However, it does not provide the depth of training that is required day-to-day in the larger international acquisition workforce. DISAM training is not highly visible and not familiar to many people. DISAM serves a limited and restricted security assistance audience. The IA workforce benefits from DAU, DISAM and Professional Military Education (PME) – or leadership training. Ideally, DAU and DISAM would work together to coordinate course syllabi.

## Arguments supporting international training

***Theme # 4 – International activities can be very complex and require specific training.***

International agreements and contracts are complex and require fluid knowledge and experience about international partners who have different rules, fiscal years, objectives, and perspectives on how to write agreements and contracts.

In many instances, international concepts and discussions are subtly embedded into existing acquisition course lessons and perhaps have gone unrecognized.

Some members of the IA workforce need more *in-depth* security training involving, for example: foreign disclosure, data rights, data transfer, and missile technology control.

Knowing too little is dangerous; it's important to recognize and acquire the level of expertise needed for different situations.

***Theme #5 – Related IA career field positions need to have access to similar training as PM IACP***

Major acquisition career field professionals (e.g., PM, LCL, Contracting, and SPRDE) often work together in managing the early acquisition phases (sometimes international) and should have at least some understanding of job responsibilities cross-functionally.

Contracting Officers (KOs) in Major Weapon Programs also take the PM courses. SMEs agree that certain KO positions that work closely with PMs, life-cycle logisticians, and SPRDE on international programs above the 50% threshold should receive the same training as PMs, and that these positions should be identified and coded "international" so that they get first priority seating in the training courses.

***Theme #6 – IA information should be made accessible and readily available to all career fields, particularly on a need-to-know basis.***

International contracting professionals (e.g., KOs, CORs etc.) would benefit from being able to network (via online sharing tool, portal, etc.) with various program office professionals to get input on various perplexities/complications from others

in contracting who have already dealt with similar issues. Web portal content should include general, high-level content about international acquisition, commonly asked questions, and lessons learned and chat features. Obviously, for security reasons, some content should not be made available to everyone.

***Theme #7 – IA training gets hindered by slow throughput and clogged pipelines.***

Since an initiative has begun to code Level-II PMs for IA, where appropriate, many internationally coded PMs are not able to get the training they need due to limited seating and clogged training pipelines.

***Theme #8 – The key players on the IA playing field need to be clarified.***

For international activities, it is important to know who the stakeholders are (e.g., DOD, State Department etc.) Some type of training or guidance is needed as to where or with whom information on unfamiliar specialized issues like export control may be attained.

## International training alternatives, options, and formats

***Theme #9 – IA training needs more visibility across the acquisition workforce.***

SPRDE education and training leadership deems international training important enough that it needs to be a course lesson in a required SPRDE course rather than just a Core Plus option. However, there is little visibility that this international training exists.

***Theme #10 – Position coding is not applicable to all career fields. Other alternatives may alleviate mandatory training requirements.***

Some career fields, like, for example, PM, Finance, and Logistics, are more likely to support international coding of positions than others. Nevertheless, training should be made available to other career fields through alternative flexible training arrangements (e.g. online training).

The large number of mandatory requirements and certifications are found to be burdensome for many individuals. It would be more expedient and effective to associate career positions/assignments with particular training. It's important to try to target requirements for position-specific training in order to reduce the workforce training burden.

CLMs are shared resources for the entire workforce. DAU offers many CLC modules and they offer CLMs for other career fields as well. Professionals can inquire about the modules that meet specific career field requirements via these course offerings. (The issue with this may be that the course offerings change often and, as such, the list is not always current or readily accessible.)

***Theme # 11 – Case studies are one of the best IA training tools.***

Case studies are a good tool for general discussion, best practice and lessons learned, as well as strategic thinking. Some specific skill sets must be met through formal training and also on-the-job experience to build career field competency. IA often requires face-to-face and group interactions to enhance clarity and understanding of concepts.

There are limitations to the value that online IA training provides. The international community requires dialogue and negotiation. Tri-service dialogues are very helpful and show the different ways a variety of cases are handled.

***Theme #12 – On-the-job-training (OJT) and just-in-time (JIT) training are the best ways to approach international training for contracting.***

OJT and JIT represent the best way to approach international training for contracting professionals because of the many in-flux country-specific requirements. For example, bilateral Reciprocal Defense Procurement and Acquisition Policy Memoranda of Understanding with allied and friendly nations may change from year-to-year or event-by-event. Also international contracting often involves specific Host Nation issues, with special agreements and clauses written in the contract. Furthermore, there can be many differences, not only across the various nations, but also across major weapon systems.

## Potential barriers to international training

***Theme #13 – IA trained workforce resources are obscured due to the lack of documented training and certification visibility.***

Individual training and certification visibility is lacking in the acquisition work force which makes it difficult to manage international program staffing.

***Theme #14 – International training requirements lack real enforcement.***

In actuality, even mandatory training requirements (of which there are very few) lack enforcement (including certification requirements), so there is very little incentive for the workforce to train. Furthermore, international training is not recorded in personnel database records, so it's not perceived as beneficial to career progression or enhancement. If documented at all, international training is listed under "other certifications," just like a "real estate license," and typically goes unnoticed.

***Theme #15 – There's little incentive to pursue IA training.***

Jobs are coded as requiring international training. But workers have 24 months to get the acquisition training and can request a waiver for another year. The workforce member could be moved on to another position before any formal training has occurred. An unspoken staffing issue is that replacements typically come into international positions cold turkey. There's little or no incentive for individuals to get the international training they need.

***Theme #16 – Resource shortages are hindering IA training needs.***

A contracting SME mentioned that it is difficult to find experts to teach modules related to international, such as CON 090, Buy American Act and Berry Amendment.

# Other important SME training themes

SMEs made many specific comments about international training needs and alternative training formats. Following are some of the highlights:

***Identified IA training needs should be prioritized.***

Priority international training should be developed for areas where there is no policy in place, e.g., financial processes for international programs.

The most critical areas in need of international training curriculum are: program management, contracting, legal, and financial. Contracting handles all dealings with the U.S. (non FMS), as well as AECA/ITAR activities. Legal handles AECA/ITAR, and Financial deals with equitability issues for which there is no specific training in place.

***IA training should be made available according to the needs of the career field (e.g., just-in-time)***.

Training needs to be offered at the appropriate juncture in an individual's career progression. For example, international contracting should not be included in entry-level training requirements. Students need to be experienced and competent in the core contracting requirements (probably 3 to 4 years into their career) before they can maneuver through the complexities of international contracting.

***Acronyms and terminology for IA need to be clarified.***

Vocabulary training opportunities would be helpful since the same acronyms are often used throughout the workforce, and even within various program offices, but may mean very different things, especially in the international arena.

***Many of the available IA resources could be used more effectively.***

Training key international program personnel (e.g., security, legal) to be able to train program office staff may offer a good training alternative that would conserve training resources (i.e., minimize staff training absence from office, minimize training costs).

Program office personnel coming into the IACP (DISAM or DAU) often don't know the basics of cooperation programs. Guest lecturers from international program offices may enhance training offered through DISAM and DAU. Guest lecturers from the DOS could provide training in international tactics, diplomacy, and politics.

***IA training should be flexible rather than standardized.***

International training should be tailored to the differing needs associated with various international activities (e.g., coproduction, FMS, and sustainment), as well as for different military services. Some SMEs report that training is "purple"— that is, developed to meet the general needs of the entire DOD acquisition workforce— and therefore, less useful and effective. The requirements, cultural practices, and training needs for each of the services are often actually very unique and should be addressed separately and in accordance with differing day-to-day practices.

***IA training should be tailored to meet specific technical needs.***

International training with respect to contracting should focus on some of the big challenge areas such as communication, timelines, money and money rules, security regulations, and legal issues/Union rules. Training might also address important issues such as cultural differences, Technical Assistance Agreements (TAAs), program reviews, and contract leads and privileges.

The Air Logistic Center (ALC) currently uses DISAM for basic international training, however, more in-depth formal training, along with job experience, is needed concerning the acquisition process and requisition system, including waivers, political interests, and political pressures.

Most of the current training offerings are suitable for foundational learning. Online courses are limited in that much international activity involves dialogue and negotiation. Case studies and classroom exchange are better formats for more complex training.

***There are many IA training gaps that need to be addressed.***

There is little or no international training for pseudo-FMS, which is important, at the very least, for the SPRDE, PM, and Contracting career fields.

Managers tend not to push certification training for technical staff, but anyone working IA needs additional training. Engineers working international engage in very specific activities that could benefit from specialized training coverage in areas such as safety flight engineering, system qualifications, international engineering personnel advisor/consultant, interfacing with international contractors to handle engineering requests and approvals, operating within the rules of the LOA, and foreign disclosure.

There are differences with respect to foreign country requisitions and different expectations are involved. The international acquisition workforce needs specialized understanding of the acquisition system, including waivers, political interests, and political pressures. There is much to be gained from both formal training and on the job experiences.

The PM (IACP) training addresses management level workforce members, but additional training is needed for the day-to-day practical interactions of less senior workers.

It is increasingly likely that workers will need to support PMs, logisticians, or perhaps item managers with international customers requesting spare parts, or asking questions that require reach back (e.g., systems, spares, requirements that must be dealt with). Also, sometimes part-time SA positions are funded by FMS contracts and they must support foreign sales.

Often PMs do not have the breadth of knowledge they need to effectively manage aspects of international acquisition that pertain to some career fields (e.g., especially Contracting). Currently, PMs do not learn enough about other career fields in their core curriculum.

Some SPRDE engineers “morph” into PM activities that involve international efforts like cooperative agreements, systems development, and product management, without prior international training or experience.

Test and evaluation career field projects are often immersed in international efforts that may benefit from specific training to address the very different requirements of partner Nations. For example, fielding of systems may have very different testing requirements in some situations.

An international training point paper should be produced and circulated to different communities of practice (COPs) to motivate international training needs discussion.

International courses are usually added to the career field curriculum, but international has enough unique nuances, such as the vast amount of content dedicated to Security Assistance (through DISAM), functional training that goes on internally,

unique desk guides, and numerous and constant policy changes, that it warrants its own career field path.

It would be beneficial for all career fields to strategically embed international lessons into the core required career field courses to build greater awareness of international acquisition activity.

While some of the contracting courses have embedded international content, there is clearly no systematic or formal international training agenda. Contracting professionals may benefit from a specific subset of international skills but do not need an entire set of international courses or career path.

Contracting officers (KOs) say they have a hard time getting into the DISAM courses if they work part international and part regular acquisition. In addition, funds managers and procurement officers have different functions, and therefore require different training.

Cross-functional training is important because it prepares and encourages the staff to be team players.

Standardized coursework, testing, and documentation should accompany training. The lack of training and standardization leads to fiscal waste and cuts down on overall productivity in the program office.

# Summary

SMEs for the SPRDE and Contracting career fields provided IA training insights that were unique, not only to their workforce communities, but also across all functional communities. The SMEs were representative of these extensively trained and educated workforce members who often function in acquisition management roles. There was consensus about the need for formal IA training in the acquisition workforce and among these particular communities.

SPRDE SMEs report, for most part, that the workforce is well aware of the importance of international acquisition training. Some SMEs have no formal international training but several of our interviewees do. SPRDE engineers play a significant role in the early planning of weapon systems and components, and they often function as lead analysts on integrated product teams (IPTs). As a result, DAU SPRDE training curricula includes embedded IA content into various courses. Also SPRDE has recently incorporated international content into the *Design Considerations* lesson of one of the Level III courses. SMEs mentioned various ways that IA training could be improved, citing that IA training is often generic, duplicative, and lacking in technical depth. SMEs stated that IA training needs to address some specific technical issues such as safety flight engineering, system qualifications, international engineering personnel advisor/consultant, interfacing with international contractors to handle engineering requests and approvals, operating within

the rules of the LOA, and foreign disclosure. SMEs commented that courses taken through DAU and DISAM provide a valuable overview of international content, but noted that they need to work together. Currently, DISAM doesn't offer specific courses for SPRDE professionals; however, SPRDE SMEs still benefit from international course content. SPRDE engineers are sometimes are drawn into PM activities that involve various international efforts.

Contracting SMEs contended that contracting professionals must be well established in their career before being trained in international acquisition. Most SMEs said they learned IA skills and competencies on the job. Contracting SMEs also contended that training is best provided "just-in-time" because of the quickly changing nature of international contracting in terms of laws, rules, Host Nation agreements, and other international relationships. Another issue cited by contracting SMEs is that the subset of professionals engaged in international acquisitions is very small. Aside from these common themes, contracting SMEs provided good feedback about the job tasks most in need of international training. Some specific areas in which IA training would apply to contracting include: communication, timelines, money and money rules, security regulations, legal issues/Union rules, cultural differences, Technical Assistance Agreements (TAAs), program reviews, and contract leads and privileges.

Contracting SMEs concur that an online sharing platform through which they could access general, high-level content about international acquisition, commonly asked questions, lessons learned and chat features, while also connecting with other IA contracting professionals would be a beneficial, flexible, and economical training resource. Contracting SMEs were mostly opposed to mandatory international training because it would be less flexible for their needs and burdensome, given the existing extensive certification requirements.

Most, if not all interviewees agree on the following themes:

*Theme #1 – There is limited awareness about IA training opportunities and applications.*

*Theme #2 – IA may apply to only a small subset of some workforce communities, making a wider requirement difficult to justify.*

*Theme #3 – IA training needs to be coordinated between DISAM and DAU.*

*Theme # 4 – International activities can be very complex and require specific training.*

*Theme #5 – Related IA career field positions need to have access to similar training.*

*Theme #6 – IA information should be made accessible and readily available to all career fields, particularly on a need-to-know basis.*

*Theme #7 – IA training gets hindered by slow throughput and clogged pipelines.*

*Theme #8 – The key players on the IA playing field need to be clarified.*

*Theme #9 – IA training needs more visibility across the acquisition workforce.*

*Theme #10 – Position coding is not applicable to all career fields. Other alternatives may alleviate mandatory training requirements.*

*Theme # 11 – Case studies are one of the best IA training tools.*

*Theme #12 – OJT and JIT are the best ways to approach international training for contracting.*

*Theme #13 – IA trained workforce resources are obscured due to the lack of documented training and certification visibility.*

*Theme #14 – International training requirements lack real enforcement.*

*Theme #15 – There is little incentive to pursue IA training.*

*Theme #16 – Resource shortages are hindering IA training needs.*

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# Chapter 8: Findings and analysis

## International activity and training in the acquisition workforce

When we began this research study we set out to find evidence for the need for international training in the acquisition workforce. In this section we discuss the supporting evidence, and provide responses to our four initial research questions. We also briefly address some training cost planning factors. As a recap, the following research questions were considered for both study Phases I (LCL) and II (SPRDE and Contracting):

- Are training requirements for IA activity different from training requirements for normal career field activity?
- What aspects of IA training apply cross-functionally to meet the training needs of *all* career fields?
- Does the existing IA training used for the PM IACP adequately meet the needs of our test cases – LCL, SPRDE, and Contracting?
- In order to meet additional IA training needs, is it necessary to develop full career paths, or should other alternatives be considered?

### International training requirement differences

In our discussions with subject matter experts in the international acquisition arena, we learned that, although some acquisition job functions overlap, there are distinct differences between traditional and international acquisition career field activities. In this section we discuss some of the key differences reported by SMEs.

International acquisition activities, tasks, and skills can be quite different and more complex than domestic program activities and skills. International program office staff members spend a considerable amount of time trying to make sure they are not violating any security, data rights, or legal rules. Program directors stated that they often make special arrangements with various subject matter experts (e.g., legal, finance, security, etc.) to brief, advise, and even travel internationally with the staff. Other ways these professionals meet international training needs are through networking with other international programs, and using outsourced training companies.

Although many aspects of contracting are standard for domestic and international transactions, often international agreements and contracts are very complex and may require "fluid" knowledge and experience. International partner requirements typically have different rules, fiscal years, objectives, and even perspectives on how to write agreements and contracts, and the more different country representatives the more complex the transactions become. In addition, the same country or nation may require different rules for different weapons systems acquisition. Contracting SMEs discussed how even seemingly small differences between cultures can stall the entire acquisition process for months.

Another indication that international acquisition requires specific training involved those PM, LCL, Contracting, and SPRDE positions that work together to manage the early acquisition phases of a program. SMEs indicate that individuals in these management and team lead roles need an understanding of international job responsibilities cross-functionally. PM and SPRDE SMEs expressed frustration at often not knowing the role of international contracting in the acquisition process, yet believing that such knowledge is necessary for managerial job performance.

SMEs also stated that it is very important to know who the stakeholders are (e.g., State Department) with respect to international activities like technology transfer/export control, and a number of SMEs lacked awareness that some courses do, in fact, cover this material..

## Cross-functional international training applications

Our research indicates that *at least* four major acquisition career fields may have a subset of acquisition professionals that make good candidates for cross-functional international training applications – PM, LCL, SPRDE, and Contracting. First, members of these career fields often achieve high levels of education and training, and meet DAWIA certification requirements. As a result, they are candidates well suited for management and supervisory positions across acquisition career fields. Second, management professionals who reach Level III DAWIA certification requirements are the most likely pool of experts to sit on functional integrated product teams (IPTs) and engage in the defense acquisition management system and planning process. These IPT members can be drawn from all of these career fields. Thirdly, when assigned to international programs, these professionals would also benefit from similar, or even identical, international training opportunities that would assist them in making sound decisions as well as help them to staff and manage effective and efficient international programs.

Furthermore, current international training has been geared toward PM, LCL, Contracting, and SPRDE acquisition professionals. The DAU PM international acquisition career path (IACP) was initially developed for internationally coded Level III DAWIA certified program managers, with Level II added later. The DISAM IACP was developed for *all* career professionals coded at the Level III (non DAWIA) requirement with field job experience. Both were developed with management level professionals in mind. However, both organizations are considering plans to open training opportunities to more junior members of the acquisition workforce who are engaged in international activities in various career fields. Although the DAU and DISAM certifications are not interchangeable, DISAM does authorize course credit for the DAU PMT 203 course, International Security and Technology Transfer.

Finally, the cross-functional roles of PMs, Life cycle logisticians, Contracting professionals, and SPRDE acquisition professionals have been mentioned by SMEs and are often cited in DOD guidance and other publications. We have discussed some of the cross-functional roles and interactions in earlier sections of this report. For example, program managers (PMs) are supported by life cycle logisticians in negotiating performance agreements and in ensuring the integration of all support elements to achieve

affordability, deployability, supportability, and mobility of the weapon system throughout the program life cycle [32]. These life cycle logisticians can work directly in a PM Office, in support of the PM, or in other supporting logistics activity offices. SMEs said that SPRDE engineers sometimes engage in PM international related job tasks. Also, life-cycle logisticians work closely with systems engineers to perform an integral role in the system engineering process, advising and consulting with a broad spectrum of acquisition personnel to ensure that supportability considerations are implemented during the design and sustainment of a weapon system [32]. As another example, systems engineers should be included to perform rigorous SE tasks during systems acquisition contracting efforts (i.e., Request for Proposal and Source Selection) in order to integrate SE requirements. [26]

## PM IACP adequacy to meet *all* international training needs

Because the PM IACP *does not meet all* international acquisition training needs, gaps do exist. First, although valuable international training is offered through two major training organizations (DISAM and DAU), the training serves different and even limited needs (e.g., broad, management level focus, and tailored to particular groups) and, as such, does not meet all international training needs.

Secondly, with respect to the *contracting* career field, none of the course offerings are tailored to meet specific international topics or skill sets, and especially not in a systematic format. A few introductory contracting courses have been noted to informally touch on international topics related to laws and rules that prevent or discourage DOD use of non-U.S. products. Contracting SMEs also mentioned international contracting training needs in areas such as stakeholder and partner communications, timelines, money and money rules, security regulations, Technical Assistance Agreements (TAAs), program reviews, contract leads and privileges, and legal issues/Union rules. They also said training in the area of cultural differences would be helpful.

Thirdly, a major training need that would potentially impact SPRDE, Contracting, and PMs concerns pseudo-FMS, an area in which SMEs report there is little or no international training. In an earlier section of this report we discussed a new DISAM initiative that is being developed for pseudo-FMS training that may potentially involve both DISAM and DAU.

Finally, SMEs said that, although current training is good, often it is very broad and high level and does not address the day-to-day needs of the international workforce, especially with respect to the less senior members. Some specific examples include the acquisition process and requisition system, waivers, political interests, and potential political pressures. SMEs also commented that, while online courses are flexible and less costly, resident courses with case studies would provide the best format in which to provide useful interactions with others experienced in complex international scenarios.

[26] Information accessed through the Office of the Deputy Undersecretary of Defense Software and Systems Engineering website at http://www.acq.osd.mil/sse/pg/guidance.html.

## International training formats across and within career fields

LCL, SPRDE, Contracting, and PM SMEs were clear that IA training needs can be met by various alternative formats and, as such, a full career path may not be necessary for every career field. These SMEs said that full career paths are costly, time/resource consuming and often do not provide the depth of training to meet all skill levels. While flexible, alternative formats were preferred by SMEs, an important dilemma that was consistently expressed in the interviews is the tradeoff between training that is flexible and economical, and the need for face-to-face interactions that characterize international acquisition activities. The flexible alternatives may provide more training opportunities, yet case studies, especially in IA, are a good tool for general discussions and feedback, strategic thinking, best practices, and lessons learned. Some SMEs contend that, to build career field competency, certain specific skill sets must be met through both formal training and on-the-job experiences.

Contracting SMEs believe that on-the-job/just-in-time IA training is the most efficient way to train their career field members. They do not believe a full career path or structured training schedules are the best alternatives. One argument is that there is only a small subset of people needing IA training at very specific points in time, generally later in their careers. Also, contracting for international programs is very complex, changing rapidly as relationships/partnerships with host nations come and go. Furthermore, there are different clauses, rules, and line items for different nations, but also for different weapons systems. In general, SMEs concur that the traditional classroom training format would not be very effective for this specialized group. The exception would be for those working alongside PMs in international programs.

Contracting and PM SMEs stated that their career field professionals would perhaps benefit from being able to access and interact, by way of an *online sharing tool*, with various international program office staff to get input on a wide number of complex international issues. While they recommend that an online tool is preferred, it is clear that interaction with others in the international arena is important for their job.

Another issue that presents an international training quandary is the topic of *mandatory* training. Most SMEs we interviewed—LCL, SPRDE, Contracting, PMs, and especially DACMs—contend that mandatory training requirements, already numerous, are burdensome for the workforce and cause blockages in the human capital supply chain. SMEs hold that recommended requirements should come down the chain of command from the DACM level, but should remain voluntary, accessible, and flexible, with informative, clear guidance, and networking opportunities. Coding positions in *all* career fields is thought to be unnecessary. SMEs believe that certain career fields most involved in international programs (e.g., PM, Finance, and LCL) are most likely to need positions coded as international. They also stated that training should be made available to other career fields through flexible training arrangements (e.g. online training).

# Potential for IA training participation in the acquisition workforce

A question that may be asked by workforce analysts is "How many acquisition workforce members might participate in an IA career path?" The percentage of individuals in a given career field that require international training is dependent on a number of factors, and not everyone working in an international program will require it. However, since 15%[27] of MDAPs have an international component, it's possible that the requirement for international training would be somewhere around that percentage, but we cannot extrapolate this percentage to programs and projects that are smaller than MDAPs. The percentage of PMs coded international is currently around 4.4%.[28] These data do not exist for the other career fields in the DAW.

# Cross-tab of 10 major findings (*highlighting similarities and differences*) across career fields (LCL, SPRDE, and Contracting)

Table 18 provides a snapshot summary of our findings, which highlight similarities and differences across the three acquisition career fields – LCL, SPRDE, and Contracting.

Table 18. Assessed career field theme similarities and differences

| | ***Similarities*** | ***Differences*** |
|---|---|---|
| **1.** *IA training is needed in the assessed acquisition workforce career fields.* | All career field SMEs agree that IA training is needed. | LCL SMEs agree on the value of introductory training early in thecareer path. Contracting SMEs contend that IA training should occur later in the career path, as needed. Some IA SMEs believe that some, but not all, career fields need IA training. |
| **2.** *IA training is occurring in these acquisition career fields both formally and informally, but training visibility throughout the workforce remains low.* | All of the career fields address IA training in some fashion, albeit differently one from the next. | Contracting does not formally identify any IA training in its curriculum, although it does occur on an as needed, informal basis.<br><br>The LCL career field is actively engaged through Core-Plus participation in PM IACP training. SPRDE has incorporated IA training into course lessons at career Level III. |

[27] Based on data provided by the Office of the Director for International Cooperation, OUSD (AT&L), 2010.
[28] OUSD(AT&L)

| | ***Similarities*** | ***Differences*** |
|---|---|---|
| **3.** *A greater level of awareness is needed of key organizations involved in IA processes.* | LCL, SPRDE and Contracting SMEs believe there is a need for greater awareness of key organizations involved in IA. | |
| **4.** *A full career path is not needed for all acquisition career fields.* | LCL, SPRDE and Contracting SMEs state that a full career path is not necessary for effective IA training. Although it may be good for some career fields, different training alternatives are more effective for others. | |
| **5.** *Flexible and cost-effective training options are important for IA training success.* | LCL, SPRDE and Contracting SMEs state that flexible alternatives for IA training are necessary. | Flexible alternatives for LCL included Core-Plus options and continuous learning modules CLMs. In addition, SMEs suggest: a short mandatory entry-level IA training for some or all career fields; a generalized IACP that addresses both common and specialized IA training needs across all career fields. The IACP could be Core Plus for some career fields and mandatory for others (for those working at 50-percent IA threshold). Alternative options for Contracting SMEs include CLMs and an online web portal. Contracting SMEs also prefer just-in-time and non-traditional training options such as outside contractors and SMEs. |
| **6.** *Hands-on training such as interactive case studies is effective and highly recommended.* | LCL, SPRDE and Contracting SMEs agree that interactive case studies are a highly effective training format for IA. | |
| **7.** *IA training in technology transfer/ export control is critical.* | LCL, SPRDE and Contracting SMEs say that technology transfer/ export control is an area possibly in need of mandatory training. | SPRDE SMEs say that technology transfer/export control training needs to include courses with greater depth. |

| | ***Similarities*** | ***Differences*** |
|---|---|---|
| **8.** *There is a detrimental awareness divide between IAC and SA in terms of authorities, processes, and training.* | LCL, SPRDE and other IA SMEs state that the division between IAC and SA hinders the acquisition workforce. | LCL SMEs talked about the divide in terms of organizations and activities. SPRDE and other IA SMEs (PMs and Security) say the division in training resources is detrimental to the workforce. |
| **9.** *Career field managers in similar roles need to have access to the same training.* | LCL, SPRDE and Contracting SMEs state that where IA program management roles overlap, the same training should be available to all career field managers. | |
| **10.** *Mandatory IA training would add more requirements to the many extant career field requirements but may be necessary at times.* | SMEs in the LCL career field recognized that mandatory training is least desirable but may sometimes be necessary, especially for technology transfer/export control. | SPRDE believes IA training is important enough that it has incorporated it into required lessons within SPRDE courses. Contracting SMEs state that mandatory IA training would be too burdensome for the vast majority of their workforce because of the many other training requirements that they face. |

# Cost planning factors

According to DAU experts, planning and costing out a training program is an art rather than a science. Table 19 contains some representative DAU planning factors for considering the costs of adding new training or expanding existing training. These cost factors encompass curriculum development and DAU's resource costs, such as instructor time and classroom space. However, these costs do not reflect the opportunity costs that students incur by spending time in training versus performing job tasks and activities.

Resource constraints will require flexibility in terms of training alternatives. For example, consideration should be given to online training and course lessons rather than entire courses of instruction as ways to handle limited classroom space and instructor availability.

Table 19. DAU representative training cost planning[a]

| Training element | Cost |
|---|---|
| New 2-hour module | $16K (Includes curriculum development and resources) |
| Case study | $20K (Includes curriculum development and resources) |
| Additional offerings of an existing course | About $10K average per added offering, up to 5/6 additional offerings |
| Expansion beyond 5/6 additional offerings—requires additional faculty | ~$130K/year and then another $10K for each course added |
| New Continuous Learning (CL) course | $140K (4 seat hours) |
| New Distance Learning (DL) course | $400K to $450K (15 seat hours) |

a. Source: DAU International Programs Office, March 2011.

# Summary

In this chapter we revisited our initial study questions and provided answers based on our analysis of SME interviews, IA literature, and available training resources. Our research indicates that there are distinct differences between traditional career field activities and international acquisition career field activities, supporting the argument for the need for IA training. In addition, we found that *at least* four major acquisition career fields may have a subset of acquisition professionals that make good candidates for cross-functional international training applications – PM, LCL, SPRDE, and Contracting. Our analysis also indicates that, while the PM IACP meets some, it *does not meet all*, international acquisition training needs, and, therefore, IA training gaps do exist. Lastly, SMEs think that a full career path is costly in terms of time and resources and does not provide the needed training depth. While alternatives are preferred, tradeoffs between flexible, economical training, and the need for mandatory, and sometimes classroom training, create dilemmas for decision makers.

We also found that there is significant overlap in the recurring IA training themes provided by SMEs representing the three career fields. Although there were overlapping themes, there were subtle differences in opinions and also in how career fields approached IA training for their particular workforce. We end this chapter with a quick presentation of various cost planning factors and considerations for some existing training formats. This study has also raised other training alternatives that may be potentially viable and worth considering.

# Chapter 9: Conclusions and recommendations

Our *preliminary* assessments of the LCL, SPRDE, and Contracting career fields has led us to conclude that international acquisition activities involve a very *distinct* set of skills, knowledge, and abilities, tailored to the IA environment. IA workforce management professionals need to have cross-functional awareness of many different rules, regulations, policies, organizations, authorities, and processes. As a result, training requirements for IA activities are different from training required for core career field functions. Based on preliminary evidence, we further conclude that training gaps do exist and should be examined more extensively.

In particular, we emphasize the need for training across *all* functional areas of the acquisition workforce, for members who engage in international technology transfer/export control activities. IA awareness could potentially save these individuals from fines and even imprisonment for security violations. In some cases, IA training does apply generally across all functional areas; however, there are instances when *tailored training* is needed for a particular career field, since different career fields possess particular IA job tasks, skills, and competency requirements. A good example is the LCL test case. While some of the general IACP courses and related competencies do apply to life cycle logisticians in an IA environment, there are other areas that are specific to LCL. In addition, international applications of the IPS elements—for the new PSM position—will require specialized training.

SPRDE has recently incorporated international content into the *Design Considerations* lesson of one of the Level III courses. Other SPRDE courses have embedded international content within lessons as well. Other specific technical issues mentioned by SMEs that IA training could address include: safety flight engineering, system qualifications, international engineering personnel advisor/consultant, interfacing with international contractors to handle engineering requests and approvals, operating within the rules of the LOA, and foreign disclosure. S&T management, once a component of SPRDE, has become a separate career field and has incorporated international training content (in particular technology transfer) into course lessons as well.

Contracting SMEs prefer “just-in-time” IA training over incorporating training into the courses, especially at early career levels. SMEs mentioned some specific areas in which training would benefit contracting, including: communication, timelines, money and money rules, security regulations, legal issues/Union rules, cultural differences, Technical Assistance Agreements (TAAs), program reviews, and contract leads and privileges. Contracting SMEs concur that an online sharing platform would be a most helpful training resource.

Our research suggests that it may not be necessary, in most cases, to develop full career paths, but rather that some other tailored, abbreviated training alternatives would suffice. In some instances, mandatory training may help to prepare more members of the acquisition workforce for IA program assignments, but, on the other hand, many SMEs oppose mandatory IA training because it is an added time burden when added to all the other

requirements. The Core Plus option, coupled with various online training formats, may be most expeditious because they are less costly and more flexible. Participation is not mandatory, however, and this approach may offer only a temporary solution. In the following subsection, we propose specific recommendations for IA workforce training.

## Our recommendations

The following recommendations represent our analysis based on three acquisition career field assessments – LCL, SPRDE, and Contracting.

1. *Develop a mandatory requirement for training with special emphasis on technology transfer/export control and international security for those working in IA.* This would apply even below the 50 percent threshold, at least for PM, LCL and SPRDE. Mandatory technology transfer/export control training would help to protect the workforce from strict security violation penalties.

2. *Expand and generalize the current content and capacity of the program management IACP to address the IA management and team lead roles taken on by other career fields.* Certain LCL, SPRDE, and Contracting positions work closely with PMs on international programs. They would benefit from a form of the training that PMs now receive, generalized to include an understanding of international job responsibilities cross-functionally.

3. *Incorporate the use of case studies more extensively to provide specialized IA training.* SME consensus is that case studies provide the best format for training involving complex international content and interactions.

4. *Encourage the exchange of mutually beneficial perspectives from international and domestic program staff.* Such opportunities may be available through U.S./International workshops. Internationals might also be able to participate in U.S. IA courses through DISAM.

5. *Consider expanding upon IA lessons and concepts that are being addressed in existing required career field courses.* We found that SPRDE, and to a much lesser degree, Contracting, have embedded IA lessons, concepts, or activities into some of the courses. It could be advantageous to expand this strategy so as to include additional pertinent IA content in required courses.

6. *Build an international acquisition web portal.* A web portal or expanded community of practice for international acquisition career fields would enable the acquisition workforce to readily access pertinent IA information.

7. *Develop international acquisition training guidance*. It would be beneficial to document IA training guidance that can be used by all career fields, to highlight concepts, courses and or special lessons/topics that are specifically geared to the IA workforce.

8. *Strategically coordinate international acquisition educational resources*. Numerous international training resources available through DAU and DISAM can be coordinated to fill international training gaps and reduce overlaps with the help of a training course matrix/mapping tool. A long-term goal might be to develop interchangeable DISAM/DAU certification programs and course credit.

9. *Implement international training by better tracking and enforcement where appropriate*. As it stands, training requirements are not strictly enforced and, in many cases, formal training can be delayed, if not avoided altogether. Furthermore, personnel records need to clearly indicate international training accomplishments.

10. *Formally train SME trainers.* Training costs might be managed more cost effectively by formally training some international program office staff leads (e.g., SMEs in legal, finance, security, PM) who would then train international program office staff.

11. *Provide just-in-time training opportunities*. Through "mission assistance," DAU currently has the ability to mobilize staff to various field locations where there are large international programs with significant staff training needs. Coordination of this arrangement to meet some IA training needs might be a cost-effective means of getting training to the acquisition workforce.

# Potential areas for further study

We suggest the following as possible follow-on tasks:

- *Conduct a comprehensive course-by-course, lesson-by-lesson inventory to highlight all aspects of currently existing international training.* In the process of compiling the training database, reviewing course content, and interviewing SMEs, we have discovered that there are many international references, discussions, and even course lessons embedded in various career field curriculum. Although it would be a significant undertaking to inventory every course lesson, particularly as they change frequently, it would be extremely helpful for future development of IA curriculum and training guidance.

- *Recognizing that the current IA competency set is PM-centric, conduct full-scale competency assessments of acquisition workforce IA activities, and develop an IA competency model for the other applicable career fields.* Begin with major international weapons systems programs and eventually expand the effort to include other IA programs, including military components, associated agencies, and 4$^{th}$ Estate. Incorporate an inventory of IA professionals working above the 50 percent threshold. Develop a database of IA workforce professionals that pulls in training data from DAU and DISAM databases.

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# Appendix A: IA training database

The IA training database is a compilation of international acquisition courses that are offered by DAU. It also contains relevant courses offered by DISAM. The database provides a snapshot of the most recent course offerings to workforce members engaged in international cooperation or security cooperation program activities.

The courses are regularly updated and may change based on workforce demand; therefore, the listings are representative and likely not comprehensive. When available, the data fields contain such information as course number, course title, prerequisites or related courses, course objective or description, and course target audience. Current course catalogs are available at the DAU (http://icatalog.dau.mil/) and DISAM (http://www.disam.dsca.mil) websites.

Source: Defense Acquisition University website: http://icatalog.dau.mil/onlinecatalog/courses.aspx

**DAU International Security Cooperation Training**

| Course | Career field applications | Course title | Prerequisite or related courses | Course description | Training objectives |
|---|---|---|---|---|---|
| PMT 202 | PM (Lvl III) and (Lvl II ao 10/2010), LCL (Lvl III); | Multinational Program Management | CLI 001-PART 1; CLI 002-PART 2; CLI 003-PART 3; CLI 004 | **Description:** This course emphasizes encouragement of armaments cooperation and interoperability with U.S. allies and friendly foreign nations. National, DOD, and U.S. policy and regulations concerning international cooperative research, development, test, evaluation, production, and logistics support, as well as security assistance, are covered in some detail. The course identifies the roles and responsibilities of individuals, foreign government, and industry involved in cooperative acquisition and security assistance programs. Students will learn about key types of agreements that promote U.S. international cooperation policy. The end goal is to provide the tools to prepare, formulate, and support a security assistance sale, direct commercial sale, cooperative acquisition, or hybrid international program. **Target Audience:** This course is designed for professionals who are involved in any form of international defense cooperation or security assistance. This course is mandatory for Program Management professionals in the international program management career path. | Employ course skills and knowledge to operate more effectively in the international acquisition environment; identify the roles and responsibilities of individuals involved in cooperative acquisition and security assistance programs, including the involvement of foreign governments and their industries; describe key Department of State, DOD, and Military Department policies on international cooperative development, production, and logistics, as well as security assistance; recognize various types of agreements that promote U.S. international cooperation policy (data and personnel exchanges, International Cooperative Research and Development (ICR&D) programs, foreign comparative testing, bilateral and multilateral projects and programs, and security assistance); and prepare, formulate, and support a security assistance sale, direct commercial sale, cooperative acquisition, or hybrid international program. |
| PMT 203 | LCL (Lvl II), PM (Lvl III) and (Lvl II ao 10/2010); | International Security and Technology Transfer/Control | CLM 036 | This course teaches students to identify, analyze, and apply the laws, policies, and processes that govern international security and technology transfer/control. The course characterizes national security policy issues and export/import licensing constraints (as defined by the Departments of State, Commerce, Treasury, and Customs) and guides evaluating their effects on domestic and international DoD programs. Students will learn the procedures for the export and import of defense and dual-use equipment and services, for handling classified and controlled unclassified program information, and for foreign visit control. Students will learn to recognize hostile and friendly foreign power elicitation and technology collection methods and techniques and develop methods of protecting information. Students will also learn to describe the U.S. government's ownership, usage, and transfer rights to foreign governments and contractors of intellectual property. | Identify, analyze, and apply the laws, policies, and processes necessary to develop system and contractor classification guidance for the control of critical program information; Describe the national security policy issues and export/import licensing constraints (as defined by the Departments of State, Commerce, and Treasury) and evaluate their effects on domestic and international DOD programs; Recognize hostile and friendly foreign power elicitation and technology collection methods and techniques and develop methods of protecting information; Describe the U.S. government's ownership, usage, and transfer rights of intellectual property to foreign governments and contractors. |

| Course | Career field applications | Course title | Prerequisite or related courses | Course description | Training objectives |
|---|---|---|---|---|---|
| PMT 304 | PM (Lvl III); | Advanced International Management Workshop | PMT 202; PMT 203 | This course is designed to prepare professionals to participate effectively in the development and negotiation of defense armaments cooperation agreements ranging from simple data exchange annexes to complex cooperative development, production, and support agreements. Students who successfully complete this course will be able to synthesize, integrate, and apply U.S. policy on international cooperative defense acquisition, including policies of the Departments of Defense, State, Commerce, and Treasury. The week's final outcome is formulating and practicing negotiation of international acquisition agreements in accordance with U.S. policies, statutes, and regulations. **Target Audience:** This course is designed for professionals who are involved in the development or execution of international cooperative agreements. This course is mandatory for Program Management professionals in the international program management career path. | Synthesize, integrate, and apply U.S. policy on international cooperative defense acquisition, spanning policies of the Departments of Defense, State, Commerce, and Treasury. Formulate and negotiate international acquisition agreements in accordance with U.S. policies. |
| PMT 313 | PM (LvL III) | Advanced Technology Security/Control Workshop | PMT 202; PMT 203, | This course explores issues associated with the proper means of analyzing, synthesizing, and applying security principles and concepts resulting in effective technology transfer. Specific topics include DOD policies and experiences, the role of executive departments and Congress, International Traffic in Arms Regulations (ITAR) exemptions, international security policy documentation, anti-tamper, NATO-EU-other international organizations' defense policies, and export control reform. | The course will enable students to assess statutory, regulatory, and policy requirements; to justify key Presidential, Congressional, Departmental, and MILDEP policies on international technology transfer and control; to plan and modify technology development and acquisition strategies to incorporate international considerations; to recommend, justify, and defend international program security and technology transfer procedures; to employ and validate proper international technology security; to identify and coordinate common positions with stakeholders and organize and blend stakeholders' needs and requirements; to assess and evaluate the technical capabilities of your customer/partner; to integrate Pol-Mil principles into customer/partner relationships; to select and evaluate international acquisition management and technology transfer processes; and to evaluate the intricacies of an international cooperative development program, such as MIDS-JTRS. |

| Course | Career field applications | Course title | Prerequisite or related courses | Course description | Training objectives |
|---|---|---|---|---|---|
| CLI 001 | PM (Lvl I); | International Armaments Cooperation (IAC), Part 1 | N/a | This module addresses Office of the Secretary of Defense and DOD component reorganizations that streamline the development and execution of IAC. It also provides information on the multilateral and bilateral forums and bodies that promote IAC and tangibly contribute to DOD-led IAC. | The International Armaments Cooperation (IAC), Part 1, is the first in a three-part series of classes that introduce the history and functions of IAC. This module addresses Office of the Secretary of Defense and DOD component reorganizations that streamline the development and execution of IAC. It also provides information on the multilateral and bilateral forums and bodies that promote IAC and tangibly contribute to DOD-led IAC. This module is based on the DOD International Armaments Cooperation Handbook. Professionals will also learn about the impact that the Sept. 11, 2001, terrorist attacks had on DOD IAC. |
| CLI 002 | PM (Lvl I); | International Armaments Cooperation (IAC), Part 2 | N/a | This module addresses policies and processes of the international agreements and the Foreign Comparative Testing Program; the Defense Research, Development, Test, and Evaluation Information Exchange Program; the defense personnel exchanges; the Engineer and Scientists Exchange Program; the Administrative and Professional Personnel Exchange Program; and the Cooperative Programs/Projects Personnel program. | |
| CLI 003 | PM (Lvl I); | International Armaments Cooperation (IAC), Part 3 | N/a | This module addresses defense cooperative trade and industrial logistics, and security and technology transfer requirements for IAC. This course is based on the DOD International Armaments Cooperation Handbook. | |
| CLI 004 | PM (Lvl II); | Information Exchange Program (IEP), DoD Generic Research, Development, Test, and Evaluation (RDT&E) | N/a | DOD Generic Research, Development, Test, and Evaluation (RDT&E) Information Exchange Program (IEP), an International Armaments Cooperation module, ensures that acquisition workforce members understand the IEP and why they should use it and are able to execute IEP information exchanges with expertise, responsibility, and accountability. This module addresses DOD component-wide requirements for developing, coordinating, negotiating, and executing IEP annexes. | |

| Course | Career field applications | Course title | Prerequisite or related courses | Course description | Training objectives |
|---|---|---|---|---|---|
| CLI 005 | | Information Exchange Program (IEP), Army-Specific Research, Development, Test, and Evaluation (RDT&E) | N/a | This module provides an introduction to Army-specific IEP; Army-specific IEP requirements; the use of U.S. Army International On-Line information analysis center agreements; annexes and activities development, coordination, and management system for developing the templates for the IEP annex package; and decentralization of the IEP annex development, coordination, negotiation, and conclusion process. | |
| CLI 006 | | Information Exchange Program (IEP), Navy-Specific Research, Development, Test, and Evaluation (RDT&E) | N/a | Information Exchange Program (IEP), Navy-Specific Research, Development, Test, and Evaluation (RDT&E) module ensures that Navy acquisition workforce members understand the Navy-specific procedures for implementing DOD's IEP, why they should participate in the IEP, and how to execute IEP information exchanges. The target audience members for this module are acquisition workforce engineers and scientists, especially potential IEP technical project officers and associate technical project officers; international cooperative program specialists; foreign disclosure officers; lawyers involved with IEP; and Navy international program office IEP professionals. | |
| CLI 007 | LCL (Lvl I); PM (Lvl II); | Technology Transfer and Export Control Fundamentals | N/a | This module is intended to provide awareness of the program manager's role in technology transfer and export control, and international security and program protection, as well as the planning process for both. | Fundamentals of Technology Transfer and Export Control; International Security and Program Protection; Planning Process; Role of the Program Manager |

Source: Defense Institute of Security Assistance Management website: <http://www.disam.dsca.mil/DISAM1/External%20Links/COURSES.asp>

## DISAM SECURITY COOPERATION TRAINING

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| **Training for CONUS** | | | | |
| SAM-OC | CONUS Orientation | | SAM-OC provides an overview of the full range of security assistance activities, to include legislation, policy, Foreign Military Sales (FMS) process, logistics, finance, and training management. The course offers the advantage of immediate training for employees as soon as they are assigned to a security assistance position, rather than waiting for the next scheduled DISAM resident course. | SAM-OC is an entry-level course designed primarily for personnel who are new to the Security Assistance (SA) field, or who perform security assistance duties on a part-time basis. |
| SAM-C (9 class days) | Security Assistance Management (SAM) CONUS Course Certification Level I | Advanced courses (SAM-CM, SAM-CF, SAM-CS); The International Program Security (IPS) lesson in this course satisfied by DAU PMT 203 | **Objective:** The course provides an understanding of security assistance case policy-making, review, and approval of the LOA to implementation, execution, and closure. This comprehensive study of the spectrum of security assistance helps students understand how their own duty functions relate to other aspects of security assistance management. It is a classroom, lecture-based course that provides a broad overview of SA/SC. Topics addressed include, but are not limited to, legal foundations, program planning and coordination, program security, contracting, financial management, logistics, training, and management documentation. | The Security Assistance Management CONUS (SAM-C) Course provides education to mid-level management education for military, U.S. government (USG) civilian, and contractor support personnel serving in CONUS in functional areas that support U.S. Security Assistance/Security Cooperation (SA/SC) programs. Personnel selected to attend SAM-C should be assigned to U.S. government activities in CONUS against billets related in some way to SA/SC. This includes contractor support personnel. Although the large majority of students in SAM-C are affiliated with DOD, personnel in similar job positions in other federal agencies may also attend. In general, most SAM-C students are between military pay grades E-7 and O-5 or comparable civilian pay grades. Requests for waivers of the above criteria will be reviewed on an individual basis by DISAM's Director of Management Studies (DISAM/DM). |

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| SAM-CM (5 class days) | Security Assistance Management - Program and Case Management Course | | The course encompasses a broad variety of topics involved in total package support of international programs. Topics include pertinent applications of the Arms Export Control Act and other statutory requirements, Department of Defense (DOD) and service implementing directives and instructions, FMS policy directives and program requirements, and Security Cooperation (SC) automated information systems. The course emphasizes effective use of FMS organizational relationships between DOD acquisition, logistical, financial, and case management personnel. The SAM-CM course will provide SC personnel with an increased knowledge of FMS policies, procedures and systems. The goal is to provide new perspectives on effective case management methodologies. To a large extent, this goal is met through the discussion of current event issues, sample case management problems and MILDEP unique seminars.D8 | The Program and Case Management Course (SAM-CM) is designed for personnel who are directly involved in or concerned with the approval, negotiation, coordination, and management of foreign military sales (FMS) cases and Security Cooperation programs. Through instructor and student dialogue and workshops, the course will provide an enhanced understanding and application of the policies, procedures, methods, systems, and sequential actions necessary for the effective management of FMS and Security Cooperation programs. |

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| SAM-CS MASL IIN D178238 (5 Days) | Security Assistance Management Logistics Support Course | | This is an advanced course. Students should already have attended an introductory course and be familiar with FMS programs and procedures. The course focuses on specific aspects of logistics, such as the integration of the elements of the total package approach, requirements determination, requisition processing, with an emphasis on shipping and transportation considerations throughout the FMS case and requisition life cycle. The course emphasizes the responsibilities and relationships between the case managers at the ILCOs with the weapon system program manager, the contract administrative office, the DLA and military department (MILDEP) item managers, the transportation coordinators, the freight forwarder, and the FMS customer. The course will focus on how to reduce frustrated and misdirected shipments, reduce supply discrepancy reports, and plan for material movement during LOR development. | The Logistics Support Course is open to all personnel supporting FMS logistics, to include Department of Defense (DOD) personnel, U.S. defense contractors, U.S. based freight forwarders, and customer foreign liaison officers. The course is specifically targeted to case managers, system program managers, procurement and administrative contracting officers, contract specialists, item managers, transportation coordinators, customer service representatives, foreign customers, freight forwarders under contract to a foreign government, port facility managers, customs agents, U.S. defense contractors, and U.S. embassy personnel. |

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| SAM-CF | Financial Management Course | | The course encompasses a broad variety of topics, including the Arms Export Control Act and other statutory requirements; Department of Defense (DOD) implementing directives and manuals; FMS pricing of materiel and services; flow and accounting of funds; the FMS trust fund; obligation and expenditure authority; payment schedules; performance reporting and reimbursement, including the FMS delivery transaction, FMS billing statement (DD Form 645), Defense Finance and Accounting Service Denver and Indianapolis Centers (DFAS) feedback reports, the Defense Integrated Financial System (DIFS); and case reconciliation, and closure. The course is interspersed with studies of the organizations and functions concerned, including the military departments (MILDEPs) and the DFAS, and their interrelationship and involvement. | Personnel should be assigned to positions in SA management, such as program/case managers, comptrollers, budget, accounting, and financial specialists, and price and cost analysts from such organizations as DOD comptroller-finance offices, FMS case implementing agencies, the Defense Security Cooperation Agency (DSCA), the DFAS-AY/DE, MILDEP financial centers, and the Defense Logistics Agency (DLA). |

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| SCM-O | Security Cooperation Management Overseas Course | | **Objective:** The Overseas Course (SCM-O) provides a functional knowledge of policies and procedures involved in the operational management of security assistance and security cooperation activities in an overseas environment. Includes current issues in U.S. foreign policy and international affairs, USG business management practices in Foreign Military Sales, and the full spectrum of security cooperation programs. **Description:** Instruction on the role of the Department of State in foreign policy, that of the Department of Defense in national defense, and that of the Congress in the areas of authorization, appropriation, and oversight. The functions and responsibilities of the geographic combatant commands (GCCs), the Defense Security Cooperation Agency (DSCA), and the Military Departments are also addressed. Associated studies include cross-cultural communications, antiterrorism and force protection, human rights, management of budget and other resources within the SCO, various automation programs, and international training management responsibilities. | DOD personnel with assignments to overseas Security Cooperation Organizations (SCOs), Defense Attaché Offices (DAOs), the geographic combatant commands (GCCs) and their component elements. Overseas Security Assistance Managers |

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| SAM-CR (5 Days) | Case Reconciliation and Closure Course | | The SAM-CR course is currently available only as an onsite course at a specific customer location. This course encompasses a broad variety of topics, including statutory requirements, DOD directives and manuals, military department (MILDEP) directives and manuals; an overview of FMS processes, including financial processes of pricing, funds management, and billing; as well as an overview of the Defense Finance Accounting System (DFAS) case reconciliation and closure processes. A presentation from the Defense Security Cooperation Agency (DSCA) discusses case financial management and both accelerated and enhanced accelerated closure from the DSCA perspective. MILDEP unique workshops make up the majority of course hours and are designed to provide hands-on training in the tools available to MILDEP and DOD agency case and financial managers. | The Case Reconciliation and Closure Course (SAM-CR) is designed to provide personnel who are directly involved or concerned with foreign military sales (FMS) case and financial management a comprehensive understanding and application of the policies, methods, systems, and actions necessary for effective and continuous case and line reconciliation from implementation through final closure. |

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| SAM-TO/TM (5 Days) | Security Assistance Management Training Officer/Training Manager Course | | **The TO course** provides a comprehensive overview of Security Cooperation (SC) and Security Assistance (SA) management, and the interrelationships of the IMSO and the international student. The curriculum explores Security Cooperation legislation, human rights considerations, SC/SA organizations and functions, and SC/SA planning and programming. In addition, the curriculum examines the individual elements of the DOD Field Studies Program (DOD FSP), Invitational Travel Orders (ITO), International Military Student's legal status, International Military Students' health entitlements while attending SC/SA training, and use of the Security Assistance Network (SAN) and the IMSO Web. The curriculum further provides a review of service-unique organizations, student administration procedures, training program automation, DOD FSP presentation practices and funding, and a comprehensive survey of cross-cultural considerations that affect the IMSO-IMS environment. | The Training Officer (TO) course is designed to meet the needs of the International Military Student Offices (IMSO) at the installation level. The Training Manager (TM) course is designed for personnel with duties involved with international training activities at the military department level and above. The TO course is provided in residence at DISAM over five days (Monday through Friday). The TM course consists of a prerequisite distance learning module tailored for training managers, in addition to the five days of TO/TM classroom instruction. |

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| SAM-TO/TM (5 Days) | Security Assistance Management Training Officer/Training Manager Course | | **The TM Course** presents a survey of the wide variety and principal features of Security Cooperation/Security Assistance Legislation and Policy, introduces the student to the role of the SCO in support of U.S. national security strategy and other supporting DOD and DOS strategic guidance, and examines the various Security Cooperation planning documents and processes for the execution of SC – with emphasis on International Military Training and the Combined Education and Training Program Plan (CETPP). The TM course also provides an overview of the entire life cycle of an FMS case with particular emphasis on international training, and financial management regulations that determine tuition pricing for International Military Training. | see above |
| IPSR | International Programs Security Requirements Course | | **Description:** The IPSR course covers the principles and procedures that facilitate international technology transfer, export controls, and foreign disclosure. Specific lessons discuss the acquisition process for international program security, controlled unclassified and foreign government information, the National Disclosure Policy and the International Traffic in Arms Regulations (ITAR). The export approval and license process is covered along with the role of the Defense Security Service (DSS). Other topics include visits and assignments of foreign nationals, Multinational Industrial Security Working Group (MISWG) documents, Committee on Foreign Investment in the United States (CFIUS) and Foreign Ownership, Control or Influence (FOCI), and the transfer of classified information. | USG/U.S. Industry Personnel+E15 |

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| Executive (SAM-E) | USG Executive and U.S. Defense Industry Course Security Assistance Management | | The objective of the course is to increase the student's understanding of USG policies and procedures for the international transfer of defense articles and services, and to provide an appreciation of the international environment in which they must function. | The Executive and Defense Industry Course (SAM-E) is designed to meet the dual educational requirements of United States Government (USG) senior-level personnel involved in security cooperation executive level positions and U.S. defense industry personnel involved in international sales. |
| MTCR (2 Days) | Missile Technology Control Regime Course | | The MTCR course is designed to familiarize students with the basic guidelines of the MTCR and the MTCR review process for Foreign Military Sales (FMS) cases. A discussion of the FMS process and the relationship of the MTCR to the Arms Export Control Act (AECA) and International Traffic in Arms Regulation (ITAR) provide the students a framework for understanding the need for thorough reviews of items provided on Letters of Offer and Acceptance (LOA). The course includes a basic missile overview to assist students in understanding the general terminology, types of missiles, and components associated with controlled items on the MTCR annex. In addition, students are introduced to the roles and responsibilities of the Departments of State (DOS), Department of Commerce (DOC), and Department of Defense (DOD). | U.S. government employees and U.S. industry personnel are eligible. U.S. government employees defined as U.S. civilians, U.S. military, and support contractor equivalents. |

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| SAM-IO MASL IIN D178088 (8 Days) | Security Assistance Management International Purchaser Orientation Course | | SAM-IO addresses U.S. SC legislation, policy, and procedures; requirements generation; planning, programming, and budgeting; resource management; acquisition and sustainment; contract administration; and technology transfer and export controls, all within the context of a security cooperation relationship with the United States. Instruction is classroom based, with reading assignments and practical exercises reinforcing lectures. The curriculum also includes an extensive Field Studies Program (FSP) that introduces students to the American way of life, incorporating visits not only to local government, commercial, cultural, and educational entities but also to private homes. | The intended audience encompasses personnel in defense ministries, service headquarters, and procurement bureaus, but may also include such diverse organizations as ministries of finance and economic development, presidential offices and national security councils, inspectors general, and legislators. Also international liaison personnel assigned to U.S. organizations in CONUS, as well as foreign defense attachés and procurement officials assigned to Washington, D.C. Locally Employed Staff (LES, a.k.a. Foreign Service Nationals (FSNs) and/or Personal Services Agreement personnel (PSAs)) working in Security Cooperation Organizations (SCOs) or political-military analysis offices in U.S. embassies abroad may also benefit from SAM-IO |
| SAM-I-Training MASL IIN D178262 (12 Days) | Security Assistance Management International Purchaser Training Course | | The first part of SAM-I Training provides an overview of SC, addressing legislation, policy, and procedures; planning, programming, and budgeting; resource management; acquisition and sustainment; contract administration; and technology transfer and export controls, all within the context of a security cooperation relationship with the U.S. The second part focuses specifically on development of training programs, student selection and administration, and automated tools available to international SA/SC training managers. Instruction is classroom based, with reading assignments and practical exercises reinforcing lectures. The curriculum also includes an extensive Field Studies Program (FSP) that introduces students to the American way of life, incorporating visits not only to local government, commercial, cultural, and educational entities but also to private homes. | SAM-I-Training is targeted at mid-level military and civilian officials involved in developing and implementing annual security cooperation (SC) training programs; student selection, preparation, and administration; and post-training student utilization. This encompasses not only personnel in defense ministries and service headquarters, but also international liaison personnel assigned to U.S. organizations in CONUS, as well as defense attachés and other officials assigned to foreign embassies in Washington, D.C. |

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| SAM-IL MASL IIN D178267 (4 Days) | Security Assistance Management International Purchaser Advanced Logistics Course | | DISAM's Advanced International Logistics Course (SAM-IL) provides refresher and specialty training for international military and civilian officials responsible for managing the logistics aspects of security cooperation (SC) programs, including those funded by U.S. grants. SAM-IL is an advanced course focused specifically on logistics management. It addresses initial support, sustainment, transportation, requisitions and discrepancy reports, and FMS customer case management. It assumes that applicants have completed course prerequisites and also have some practical experience in FMS logistics management. Instruction is classroom based, with reading assignments and practical exercises reinforcing lectures. The curriculum also includes an abbreviated Field Studies Program (FSP) that introduces students to the concept of the American citizen-soldier. | |

| Course | Course title | Prerequisite or related courses | Course objective/description | Course target audience |
|---|---|---|---|---|
| SAM-I-Financial MASL IIN D178263 (12 Days) | Security Assistance Management International Purchaser Financial Course | | The first part provides an overview of SC, addressing legislation, policy, and procedures; planning, programming, and budgeting; resource management; acquisition and sustainment; contract administration; and technology transfer and export controls, all within the context of a security cooperation relationship with the United States. The second part focuses specifically on financial issues, addressing funds management, pricing policies, billing procedures, and FMS customer case management. Instruction is classroom based, with reading assignments and practical exercises reinforcing lectures. The curriculum also includes an extensive Field Studies Program (FSP) that introduces students to the American way of life, incorporating visits not only to local government, commercial, cultural, and educational entities but to private homes as well. | SAM-I-Financial is designed to meet the needs of senior and mid-level military and civilian officials responsible for the financial management of FMS cases, including those funded by U.S. grants. This encompasses personnel in defense ministries, service headquarters, and procurement bureaus; it may also include international liaison personnel assigned to U.S. organizations in CONUS, as well as defense attachés and foreign procurement officials assigned to Washington, D.C. |

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# Appendix B: LCL interviews

## Career management

### Navy Director, Acquisition Career Management (DACM) and Navy International Program Office (NIPO)

The Navy DACM office deals with the management and development of the civilian acquisition workforce. The DACM's view in terms of expanding IA cross-functionally is that the DAU courses are already open to all career fields.[1] The entire acquisition workforce can participate in such courses as Advanced International Management, Technology Security, and other assignment-specific international courses. Any training gap analysis should include not only course creation but also course expansion. The DACM stated that it's unlikely that the career field leaders would recommend mandatory IA training. Furthermore, when considering assignment-specific IA training to other career fields, the current PM IACP guidelines and 50-percent threshold criteria for international activity should be applied across all functional areas/career fields.

## Program Office directors and staff

### Joint Strike Fighter (JSF) Program Office

The JSF Navy staff member provided background information about the program staff, structure, and some history of how the program has evolved. The JSF program began with a fledgling staff in 1996; today it is a $4.5-billion cooperative effort with 8 international country partners, each with a Cooperative Program Personnel (CPP) member in the main program office. The program consists of about 60 employees, distributed among the different offices. Most of the CPPs are military joint staff, including 8 colonels. The CPPs are from foreign country air forces or navies. There are more civilians from the U.S. Navy (including the Marine Corps) than from other service branches represented, and the leadership roles are balanced among the group.

The staff is self-taught and most are self-trained on the job in many areas of international acquisition. Others are hired with specific subject matter expertise. When working with multiple partners, concurrency[2] of JSF programs is a necessity, and negotiation is a required competency. CPPs are skilled in logistics, requirements, and costs, and they are

[1] Seats are reserved only for IACP in order to meet requirements; therefore, effectively the IA courses are not open to all career fields (Duane "DT" Tripp, DAU Director, International Programs, March 2011).
[2] "Concurrency" describes the production of a weapon system while some portions of the design are still being completed. Analysts note that many acquisition officials contend that both too much and too little concurrency is bad for a program and leads to excessive cost growth. Defense acquisition programs typically experience some level of concurrency. (Eric P. Groo, Donald A. Birchler, and Gaylord E. Christle, *Design Build Concurrency: Cost Implications*, May 2009 (CNA Research Memorandum D0020008.A4)).

not allowed to work foreign military sales (FMS) cases. Logistic subject matter experts (SMEs) are contracted to handle FMS. The staff fully supports the notion of expanding international training to other career fields and believes it is an important endeavor. The staff contends that the acquisition workforce needs cross-functional training for international activity because weapon system acquisition through international cooperative programs and FMS transactions are the future of U.S. defense programs and will ultimately affect the entire acquisition workforce. Training emphasizing a much-needed competency area, *diplomatic relations*, would be beneficial for those working in IA.

## JSF Program Office: Cooperative Program Personnel (CPP)

We interviewed an international CPP member from the JSF office with LCL experience who stated that IA training will become increasingly important because IA activities are moving beyond traditional FMS activities to more cooperative engagements with partners in order to meet their needs and requirements and to enhance interoperability. This CPP staffer has had no formal international training but has learned mostly on the job. He recommends that internationals be allowed to participate in training, such as that offered through DAU. He considers IA to be primarily a U.S. concept carried out in a U.S. acquisition environment through such activities as IC Memoranda of Understanding (MOUs) and SA FMS. Foreign partners often have no formal training in processes, such as the U.S. budget cycle, and this makes the job difficult at times. IA training in budgetary, approval, and political processes would be helpful to foreign partners. The CPP staff member stated that IA activities are becoming increasingly complex as the programs seek global life-cycle solutions that draw on sustainment solutions across international boundaries. Big problem areas involve taxes, tariffs, and security constraints for acquisition and delivery of systems across national boundaries. Problems also arise from the lack of understanding of how U.S. rules apply to international movement of goods. Ownership of goods is also a complex issue because partners must rely on U.S. ownership and financial contributions from all partners. The staff member suggested that program managers and life-cycle logisticians should receive the same international training because they often play the same role. Life-cycle logisticians can become program managers. Overall, mid-level managers would probably make the best candidates for “generic” IA training because they would likely need to address IA activities more frequently than most specialists, but this may depend on the particular program. The staff member recommends using international training “units” or “modules” to meet specific needs rather than an entire career field path.

## Rolling Airframe Missile (RAM) Program Office

A staff member shared that the Rolling Air Frame Missile (RAM) program is a bilateral cooperative partnership (50/50) between the U.S. Navy and the German Navy, which have codeveloped and coproduced the RAM system under a series of international agreements (MOUs and Memoranda of Agreement (MOAs)) since 1976. RAM is in full

operational deployment in the U.S. and German Navies. South Korea, Greece, Egypt, Turkey, and the United Arab Emirates have procured RAM systems.

The RAM program office staff has primarily been trained on the job, but some staff members have taken DAU courses, including PMT 202 and 203. RAM has a 20-year long-standing support contract that requires significant IA activity in the area of technology transfer and export control (e.g., MOUs, Technical Assistance Agreements (TAAs), vehicles to exchange information, and export licenses). The staff recommends developing courses that explain how key aspects of IA work. For example, there is a need for more in-depth training in export licensing and TAA because C09 and Navy IPO require concurrence in these areas. Furthermore, training should cover the various roles of OSD, identify stakeholder relationships, and discuss various U.S. policies toward foreign countries. The staff also recommends that support contractors be allowed to attend IA training courses because installation and support management costs are covered by the United States, not allies.

## Life-Cycle Logistics Division Functional Office, Eglin Air Force Materiel Command (AFMC)

We interviewed a PM/LCL Level III expert at Eglin AFB. The staff logistician stated that there is an immediate, critical training need for life-cycle logisticians as a result of the Fiscal Year 2010 National Defense Authorization Act (NDAA) [17], Public Law 111-84, Section 805.[3] According to the Eglin logistic advisor, PSMs will act as Deputy Program Managers for every ACAT I and II program, including international programs. The LCL staff levels affected will primarily include GS 14s and 15s, O-5s, and O-6s.[4] The sentiment is that life-cycle logisticians have been pushed into the background for years and now must be brought back. Legislation calls for LCL life-cycle logisticians to transition into the new PSM position by year end (December 2010), a role that many may not be prepared to handle. In particular, the ten Integrated Logistic Support (ILS) elements (some of which contain international tasks) may be especially problematic. Life-cycle logisticians need to be exposed to PM training courses. The level of international activity will vary depending on the ACAT level of the program, but IA training will be necessary in terms of both additional training and renewed training.

[3] The legislation calls for the implementation of a new Product Support Manager (PSM) position effective at the end of December 2010. The legislation (Public Law 111-84) contains a provision in Section 805, "Life Cycle Management and Product Support," requiring "(1) that the Secretary of Defense issue comprehensive guidance on Life Cycle Management (LCM), and the development and implementation of product support strategies for major weapon systems; (2) that each major weapon system be supported by a Product Support Manager (PSM); and (3) that each PSM position be performed by a properly qualified member of the armed forces or full-time employee of the Department of Defense." See [13].

[4] DAU Logistics and Sustainment Center Director Bill Kobren confirmed that the staffing requirement calls for LCL Level III certified candidates, effectively life-cycle logisticians. Furthermore, dual certifications are strongly encouraged.

## Headquarters: Wright Patterson Air Force Material Command (AFMC)

We interviewed a representative logistician from Wright Patterson AFMC base headquarters. He stated that issues concerning the new PSM position involving Level III life-cycle logisticians are being explored. The Air Force would like to create more PSMs than the guidance requires, so ultimately there will be a greater need for training. Currently, the PSM guidance requirement language applies to major weapon systems, but the requirement will eventually need to be expanded to meet the needs of smaller programs. The minimum requirement levels for PSMs seem to be there in terms of Level III life-cycle logisticians; however, more positions are needed. In addition, an Air Force survey has been sent out to determine what the logistics role will be. System support managers are currently performing the role of the new PSM, although these are distinctly different positions. Air Force leaders are trying to determine the number of people available to meet the basic requirement level of the PSM position and how many additional positions and people the Air Force will need.

The staff representative stated that it's very likely that PSMs will be important positions on international program staff. Performance-based logistic (PBL) contracts for sustainment will be needed even though partners may require differing levels of support at differing levels of funding. An IA program would benefit from a Level III PSM, and Product Support Integrators (PSIs) will require LCL integration. All of the support elements should be considered in IA programs. However, IA sustainment strategies will differ among programs; for example, some will need more training or more facilities than others. The design interface element is important early on in programs because it affects supportability analysis of the ongoing revisions and changes to systems and support packages. The AFMC logistician said that some thought should be given to IA implications and training needs during development of the PSM training strategy.

The representative also mentioned that the Weapon System Acquisition Defense Reform initiative calls for the support elements to undergo standardization that will affect each of the services. Support elements for the Air Force are broader than logistics since they incorporated such aspects as safety, anti-tamper, and funding integration. In terms of IA application, the newly standardized elements will include a specific support element to address anti-tamper measures.

## Logistics Manager: MIDS Joint Program Office

We interviewed an expert logistician on the Multifunctional Information Distribution System (MIDS) program staff who is also experienced in FMS policy. MIDS is a major U.S.-led international development program of Link 16 data communications terminals. The countries funding MIDS are the United States, France, Germany, Italy, and Spain. Money allocation varies among the partners, with the United States and France contributing the largest shares. The MIDS program is led by the U.S. Navy with a U.S. Navy captain as program manager; the deputy program manager is a French military officer. The program includes two U.S. vendors and one European vendor.

According to the MIDS LCL staff member, the major difference between the life-cycle logistician's job in an international program office and a domestic program office is the number of partners that must be satisfied. In terms of international activity, MIDS Joint Tactical Radio System (JTRS) plays a minor role, while MIDS Low Volume Terminal (LVT) is 100 percent international. Given the many program variables—people, requirements, restrictions, desires, boundaries, etc.—there are always issues and the need to engage in the problem-solving of big problems. Staff IA training in the MIDS program office LCL role is primarily on-the-job training. Problem-solving skills are critical to the job. The staff member stated that experience is often the best teacher since academic perspectives (e.g., PBL course) offer a best way to do it, but that's not typically based on real-world issues. International LCL problem-solving is politically laden; pacifying the Program Memorandum of Understanding (PMOU) is the reality. Problem-solving workshops and case studies are the way to best help train acquisition logisticians; problem-solvers also make the best logistic negotiators. Additional training should be designed to emphasize to life-cycle logisticians that "the system must be *designed for supportability* to get the biggest bang for the buck." Many systems are out there operating at higher cost than needed. The staff member recommends that leaders determine whether the problems are resulting from a lack of knowledge of policies, processes, etc., or if the issue is that some workers are "*just not good problem solvers*."

## Air Force Material Command (AFMC), Eglin AFB

A staff expert in foreign military sales discussed the key aspects of his role and provided inputs concerning problems and issues in LCL. An FMS "life-cycle logistician" spends 100 percent of the time performing international activities. Some of the broad categories and responsibilities of LCL FMS are facility site assessments, periodic customer meetings to provide customer support recommendations, weapon procurement, providing Country Standard Technical Order (CSTO) to customer (including verification and validation), providing information for shipping and tracking of weapon systems and spares, weapon system integration on platforms, and testing. There are no milestones or individual packages to prepare, but life-cycle logisticians do "bed down" the system. Many of the traditional logistic functions are the same for life-cycle logisticians but with much less detail.

Transportation is problematic for LCL life-cycle logisticians because it is often an un-familiar area. Delivery term codes (DTCs), which determine who pays for transportation, represent a particular area of frustration and confusion.[5] A training course or lesson on the various organizations and agencies involved in transportation would help to reduce confusion. Examples of competencies related to munitions were provided. The manager also stated that the CLM 036 Technology Transfer and Export Control Fundamentals and PMT 203 International Security and Technology/Control are necessary courses for life-cycle logisticians working in IA.

[5] The DTC indicates the point in the transportation cycle at which responsibility for physical movement of an FMS shipment passes from the U.S. Department of Defense to the purchaser (http://www.disam.dsca.mil/pubs/DR/11%20Chapter.pdf).

# Policy and training

## Under Secretary of the Air Force – International Affairs (SAF-IAPQ)

The SAF-IAPQ staff is not specifically involved with any life-cycle logistic activities, although they have at times briefly dealt with logistic sustainment agreements. Most of the programs within SAF-IAPQ involve existing cooperative programs and agreements. The staff is made up of mostly international affairs experts, not logisticians. The program managers on staff have taken the DAU PM IACP prescribed courses, including the CLI series in International Armaments Cooperation (IAC). Staff members agreed that all career fields should have at least basic knowledge about international acquisition activities in the acquisition workforce and that it would be beneficial to train workers before they get to their career specialization. For instance, all acquisition career fields use *cooperative opportunities documents* at Milestone A, issues covered in Acquisition 101 for PMs. They also recommend more training in *negotiation skills* because international acquisition often involves complex negotiation processes. Finally, they emphasized the need for training involving the network of IA organizations. The staff agreed that it's time consuming and frustrating to try to piece together who the IA *community counterparts* are, including not only the services but also Department of Commerce, Department of State, and DOD, and the contacts differ by community.

# Defense Acquisition University (DAU) training program directors

## DAU Director, International Programs

The DAU Director discussed several *barriers* to IA training initiatives. In addition to being the last functional area to begin training development, international acquisition has met with some resistance. For example, institutional "stovepipes" have contributed to closed communication channels and a resulting lack of understanding about the IA arena. Many in the acquisition workforce remain skeptical about IA training because they lack basic knowledge, such as what organizations are responsible for or involved with international programs, what characterizes an international program or what types of activities occur in them, and how IA program activities and skills differ from those of domestic programs. A *mandatory* entry-level lesson in IA across all functional areas would be most beneficial. A cross-functional course in technology transfer and export control is especially critical for those working in IA because of the serious nature of the penalties for security violations. To successfully mandate IA training, course development must be based on rigorously identified career field competencies.

## DAU Academic Programs Office

The staff in the DAU Academic Program Office believes there should be a more comprehensive IA competency development effort before the development of training courses. They presented information on a select methodology for developing an effective competency model. Course development must result from a strong competency model to avoid wasted training resources. Furthermore, training courses that are developed without identified competencies are not viable and are the first eliminated during resource shortages.

## DAU Logistics & Sustainment Center

The staff at the DAU Logistics & Sustainment Center discussed the recent increase in DAU course offerings that may make it difficult to add entirely new career paths to the current course load. A better option would be Core Plus.[6] The staff also confirmed that IA activities/competencies are dispersed throughout life-cycle logistic competencies. They have not yet been isolated and identified in existing logistic competency models. The staff recommends adding focused IA training "lessons" to existing entry-level courses; such lessons would be less resource intensive. Possible course applications include ACQ 101, 201 A, B (B, in particular, for online flexibility). A lesson in *Tech Transfer and Arms Export Control* would be especially beneficial for members of every career field who might some day face an IA issue. The staff suspects that IA training needs likely extend beyond LCL into the broad category of logistics.[7] Also, while LCL has traditionally been considered by the workforce to be primarily focused on acquisition, there is an increasing trend of sustainment activity in LCL. The new Product Support Manager (PSM) position may require some training for life-cycle logisticians associated with certain IA programs.[8]

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[6] Core Plus represents an enhanced career field certification and development framework designed to guide acquisition professionals to competency development beyond the minimum standards required for certification based on specific types of assignments within an acquisition/functional career field. No Core Plus training is mandatory.

[7] DAU is preparing to provide training for more than 3,000 members from DLA, who primarily work in sustainment activities.

[8] For more information on the PSM position, see [13].

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# Appendix C: SPRDE and Contracting interviews

## Career management

### Air Force DACM

The AF DACM staff expressed a desire to know how DAU and DISAM are meeting IA training needs differently. They commented that it seemed strange that *DAU and DISAM are so disconnected in terms of course curriculum*. The DACM said the important thing is to find out what the international training needs of the acquisition workforce are and to get the needs met *wherever* the necessary training is available. They said that it may help to take a look at a compiled list of tagged AF international positions to help identify who has taken which courses.

The staff's opinion is that *PM, Finance, and Logistics* are the career fields with the greatest need for international training. Other career fields are less likely to actually code positions as international. Program offices often have an international team in place perhaps working on FMS or cooperative development programs. Not everyone in the program office is doing international work. International activity mostly has to do with development, sales, or sustainment (Air Logistics Centers). *LCL* is usually the career field working ALC sustainment activities. *Engineers* would most likely benefit from more focused international training for "sustainment" activities. These professionals run into reengineering tasks when transitions are made from older systems to newer systems, yet older systems are still out there and in some cases (especially international) need to be operational. An example is when an electronics industry application moves from a "2 amp" to a "3 amp" capacity. *Contracting* professionals probably would benefit from their own specific courses since their activities are less likely to be cross-functional with other career fields.

In terms of *Technology Transfer/Export Control*, DACM staff said that a group of R&D engineers (Pentagon) have expressed a need for technology transfer training, but didn't really express a need for any other international training. These engineers are trying to get acquisition coded. They commented that *nearly 40 to 50 percent of engineers are not acquisition coded*.

The AF Functional leads have initiated with the DACM the *coding of seats as international (especially for PMs Level II)*. Coding allows PMs (Level II) to enroll in the IACP. But there is currently an issue with throughput for the DAU IACP courses as a result of limited class sizes. As a result, many of these PMs are having a very difficult time getting into the classes and are waiting in the pipeline.

Core basic IA training should be made available as online courses to reach and meet the needs of the most acquisition professionals. Most career fields really only need a few specific international training applications, not an entire curriculum. This is probably also

true for some PMs, who may also benefit more from a core plus arrangement. Online training would eliminate the problem of insufficient resources (time and money) for resident training courses. Online training would also take care of the issue with "throughput" into DAU international course offerings.

## Army DACM

SMEs representing the U.S. Army DACM possessed broad career field exposure, including PM and SPRDE. However, all training and skills were obtained on the job. The SMEs provided the following key comments about IA training. First, they said that a general introductory international training course would be a good idea. The CL module approach provides unfettered, unlimited training opportunities. Resident courses often have limitations on seats and throughput capability. They said that resident courses are more necessary at higher levels in the career field progression wherein more complex, position-specific skill sets are required, including strategic and critical thinking.

The DACM staff mentioned that PM IACP competencies are high-level, strategic competencies that will likely not apply to career field professionals at more junior levels. The staff said that a subset of SPRDE engineers in management roles may "morph" into PM activities that involve international efforts, such as cooperative agreements and systems development and product management. The PM IACP may actually be beneficial to theses engineers. The PMT 401 class offered valuable case studies. This is a good format for supplementing international training because it allows for discussion and sharing of different experiences, perspectives, and ideas. In particular the staff felt that case studies are a proven way to develop critical thinking and competency.

The DACM staff mentioned that *Test and Evaluation* career field projects are often immersed in international efforts that may benefit from specific training to address the diverse requirements of partner nations. For example, fielding of systems may have very different requirements in some situations. The staff also believes that the PEO SYSCOM commander's conference would be a good venue for an integrated workshop discussion of international training nuances and needs across career fields. They also said that a good point paper produced and circulated to communities of practice (COPs) from international training discussion at the conference would be beneficial.

DACM staff members felt that training curricula tend to be "purple"—that is, developed to meet the general needs of the entire DOD acquisition workforce. The requirements, cultural practices, and training needs for each of the services are often unique and should be addressed separately because day-to-day practices differ. They said there are bound to be some user-specific requirements that can be addressed through targeted training. For example, managing the trade space between cost, schedule, and performance needs to be clarified and will most likely differ for the various partners; it would be helpful to understand different life-cycle management paradigms.

The staff mentioned that, the higher up you go in acquisition management, the more important it is to know where to get the answers because you can't be an expert in every-

thing. For international activities, it's important to know who the stakeholders are (e.g., State Department). Some type of training or guidance is needed on where to go and whom to consult to get information on unfamiliar specialized issues, such as export control.

Finally, the DACM staff commented that mandatory requirements and certifications become burdensome because there are so many. It would be more expedient and effective to associate career positions/assignments with particular training. They suggest trying to target requirements for position-specific training to reduce the workforce training burden.

### 4th Estate DACM

4th Estate DACM representatives identified the various agencies (e.g., DCMA, NSA, DIA, MDA etc) and contacts that may be able to provide further input to the IA discussion. They said that many 4th Estate agencies have apparently not formally coded IA positions, with a few exceptions. They mentioned that PM is the only acquisition career field that currently has an established AT&L Workforce Position Category Description (PCD) for IA, which helps to determine by particular criteria (for instance, when 50% or more of duties and responsibilities are IA related) which AT&L career field/path to assign to an AT&L position per Title 10.

The staff also said that DAU's international directorate may be able to provide a workforce count (although likely incomplete) for those engaged in IA within various acquisition career fields for military components and 4th Estate agencies.

In terms of suggestions for IA training, the staff recommended tailoring an existing DAU *mission assistance* rapid deployment workshop to meet IA training needs.

## Program offices

### AV-8B V/STOL Harrier (NAVAIR)

The PMA-257 program office is responsible for life-cycle sustainment of the AV-8B Harrier Weapon System, a 20-year cooperative for the USMC and its allied partners: the United Kingdom (currently pulling out), Spain, and Italy. The AV-8B V/STOL Harrier staff said NAVAIR supplements the international training that is offered through DAU and DISAM. The Cooperative Program Directors had a few training courses for the Harrier, a major joint program office, and had to learn primarily on the job. The director spends a considerable amount of time educating the staff on cooperatives.

The security staff person gives briefings to others on the program staff. In fact, nothing is done without consulting security staff personnel. Technology security associates have also written courses and provided some training for NAVAIR. Currently, there is an annually required online training course for *antiterrorism*.
Security cooperation is predominantly FMS related, and both cooperatives and FMS happen in the same program office. IA vocabulary would be a useful training application.

Program office vocabulary can become confusing because there are many acronyms used in the international arena that apply to other areas. For example, IA is the abbreviation not only for "international acquisition" but also for "information assurance." Certain IA training is needed for all career fields, especially *security-related training* (e.g., TT/EC). In addition, technical career fields, such as logistics and engineering, have a critical need for security/release training. These technicians can't discuss anything without knowing what's releasable. The director referenced a September 2010 memo that required 80 to 90 percent of workforce identified and trained in IA Security Assistance activities.

*Formal training is important because knowing too little can be dangerous, especially in areas of security*. The director recommends developing curriculum for trainers (e.g., security staff who can then train program office staff). This type of arrangement would allow training to be tailored to the needs of individual program offices. It would also help minimize staff time away from the office and training costs. Security staff currently receive some training via the IACP (DISAM), and they take training courses in international releasability through a company called Technology Security Associates.

There are many diplomatic nuances to be aware of in international programs. *Travel in and of itself* is an issue and a key area in need of training for international program staff. When traveling internationally, staff must consider warnings, behaviors/customs, cross-cultural differences, paperwork requirements, communications networks/differences, and how to avoid being a target (e.g., red versus blue passport, don't show military ID). The online antiterrorism course covers some material, but the program's security personnel are more knowledgeable about specific program needs.

The international activities and training needs may differ between military services (e.g., AF and Navy) and also between countries.

There are also differences in the training needs among international acquisition activities (e.g., production, sustainment and FMS). The Joint Strike Fighter program, for example, is still involved in production activities. The Harrier program is involved in sustainment activities.

Financial processes in the international arena may benefit from training because they tend to lack structure and standardization. The processes must be restructured each time a program is established by drawing from the experiences of other programs. For example, the P8 program was structured based on the Harrier program (e.g., used Harrier MOU), and JSF, the largest NAVAIR cooperative program, has also engaged in this type of information exchange with Harrier and other NAVAIR programs.

It's certainly important for legal, contracting, and financial to be well trained to handle the many variables, particularly with respect to the technical career fields of engineering and logistics. The program office should consider, however, whether it's feasible to train an entire workforce for activities they may or may not engage in, especially when each program has many unique features.

A clear indication of the need for IA training is that, in some instances, people come into the IACP (DISAM) from program offices with no knowledge of acquisition basics for cooperative programs. Also, the Director has taken some allies to executive courses and has provided an overview briefing of cooperative programs. DAU offers this training in the level 400 courses. The AV-8 Director has been the guest lecturer at some of DAU's 400 level courses. *The training needs that haven't yet been addressed or developed are often passed up the chain to the PM track, 400 level courses, and to executive level O6s*.

The Director's perspective is that the most critical areas in need of training are *program management, contracting, legal,* and *financial.* Contracting handles all dealings with the U.S. (non FMS) as well as AECA/ITAR activities. Legal handles AECA/ITAR, and financial deals with equitability issues for which there are no processes in place. Priority training should be developed for areas where there is no policy in place (e.g., financial processes). People need to know whom to talk to get answers. This could be incorporated into professional panels and workshops.

Contracting and legal issues would likely need a different approach. About 45 percent of the Director's job is figuring out if legal needs to be involved in a given situation. Some lessons learned have developed but at a very high level with no specific guidance.

Although some cross-cultural training is offered, *there's still a need for training in politics, tactics, and diplomacy.* The State Department might be engaged to provide cross-training in the diplomacy and tactics areas.

For the most part, IA training is not truly mandatory. The IACP is still voluntary and in the process of developing requirements. In fact, right now there is only one course, online, through DISAM that is actually required. The introductory online training is currently only mandated as part of the certificate program. The online mandated 2- to 3-day course also discusses the differences between cooperatives and FMS programs. A classroom format would be more useful because the course needs to allow for discussion and questions.

Currently, team leads must rely heavily on *international staff specialists* because the lead can't get too deeply immersed in any particular area. He or she must maintain a broad overview of all activities.

## Navy International Program Office (NIPO)

Contracting officers (KOs) and contracting officer's representatives (CORs) have very little international experience and must therefore learn on the job. Only a small subset of contracting involves international; about 95 percent of contracting is domestic. Within NAVSEA 02, some contracting professionals are involved in FMS and very few are involved with international agreements. Out of about 200 contracting professionals within NAVSEA, only 5 to 10 would be working an international cooperative. However, contracting is a critical part of international agreements, which involve partnerships, not buyer/seller transactions.

The SMEs stated that, while only a subset of the contracting officers tapped by program offices need to get international training, when the program offices ask for international skills, they want someone well trained already. Conversely, it sometimes seems that part of career progression is to develop international skills. International-specific contracting skills are sketchy with varying needs. Sometimes foreign countries try to use standard boilerplate contracts but may run into conflict when *things change or need to be customized* (e.g., in terms of claims and liability; intellectual property rights, involving contractors not just the partners; future sales and transfers; disclosure and use; and security inspections). There are also variations with respect to FAR and DFAR. Training exercises may help contracting professionals to develop detail-oriented skills. However, training across the board would be problematic if it were offered before it's needed in the career progression.

The NIPO SME said that PMs need to work closely with KOs/CORs. Good PMs can leverage international resources for cooperative production. PMs and KOs/CORs can help grow programs if they are more knowledgeable about what's truly needed to meet requirements. KOs/CORs must understand many complexities of international agreements/contracts. Governments have different rules, fiscal years, objectives, and perspectives of how contracts should be written. KOs/CORs must determine where the contractual weaknesses are that must be considered. For example, decisions must be made about additional testing, risk mitigation, and so on.

## Air Force Materiel Command Warner Robins Air Logistics Center (WR-ALC), Acquisition

We interviewed a PM acquisition officer from the AFMC WR-ALC who has participated in training through both DAU and DISAM. According to this PM SME, much of the foundational subject matter overlaps. He stated that DAU courses (while much more accessible throughout the United States) tend to be very *"high level"* with minimal application at the tactical level, particularly in international FMS sustainment activities.

DISAM, located primarily at Wright Patterson AFB, is much less accessible; however, DISAM courses tend to be more detailed and case specific and are more geared toward international work at the tactical level on base rather than at the institutional/policy level. DISAM courses focus on *how to* conduct FMS cases and prepare students to "hit the ground running" when they go on assignment. For example, case study applications involving the letter of acceptance (LOA), present the *what, how,* and even *what should be expected* when handling an FMS case. The DISAM IACP requires students to complete the course work and demonstrate their professional military education (PME).

The SME said that currently there is no FMS certification. Typically, managers go to AFSAC to locate specialists to support international programs by word of mouth during informal conversation, conferences, etc. Sometimes international specialists are identified during interviews, when they mention past work in international areas or present their "certs" (certifications).

Personnel initiatives sometimes bring the certifications to light, but there is no record in the acquisition workforce system that identifies an individual's certs. There would be enormous value added in developing a way to gain workforce visibility, including individual training and cert levels.

The SME provided four notable suggestions. Attention needs to be given to identifying overlaps/redundancy in training within DAU/DISAM institutions. A closer examination is needed to determine if the courses are really addressing the needs of the trainees. Consideration should be given to what level of training is most needed or requested (e.g., tactical (base) level, institutional/programmatic or policy level). Finally, international databases need to connect, and certifications need to be made visible.

## MIDS Program Office, Space and Naval Warfare Systems Command (SPAWAR)

In an interview with a Multifunctional Information Distribution System procurement contracting officer (PCO), the SME said that the staff has had no formal IA training and there are no IA training requirements. International skills have been learned on the job. The SME said that many contracting officers gravitate toward international programs simply because they have a personal interest in international topics, not because they possess prior IA specific skills.

The SME believes that IA training would be helpful and has recently considered looking into the Continuous Learning International Armaments Cooperation (CLI IAC) courses at DAU. However, the SME wasn't sure how helpful they would be based on the titles. Training in the FAR covers different treaties, and so on, that pertain to international contracting, but there is no training related to detailed contracting officer job functions.

For example, KO job functions call for strict adherence to rules, but international projects still require *flexibility;* therefore, KOs must really know what they are doing to avoid pitfalls. For this reason, some training applications would be most helpful later in a KO's career. The main issues deal with money (and the rules associated with money) and variations in the flexibility of funds across partner nations. It's important and particularly difficult to maintain strict adherence to the rules in cooperative programs; it is much easier in FMS transactions. Strict approval processes for cooperative projects can slow down the delivery of an award by months or even years. Earned value management cases can be very difficult because five countries may be forced to use U.S. rules, and all must be certified to participate.

The SME said that KOs maintain a busy pace, so a short training format to familiarize the staff with international issues they may encounter may be helpful. ITAR (security issues) presents an especially important area for training. In fact, members of the MIDS staff have taken critical foreign disclosure and implementation training through an outside company.

Numerous areas are suitable for IA training applications, but the big international contracting issues involve communication, timelines, money and money rules, security, regulations and laws, legal issues/union rules, and contract liability. A web portal for international contracting would be a helpful training tool. Often COs run into perplexities/ complications, and it would be beneficial to have input from other international COs that have already dealt with certain issues. In particular, a network of experienced professionals in the various laws and legal aspects of contracting for those working international cooperatives, and Pseudo-FMS/FMS, would be very helpful. A community-sharing platform would help COs to navigate contracting pitfalls. Also, the Freedom of Information Act (FOIA) is a problematic area that often involves numerous exceptions by foreign participants and can result in major planning delays. RFPs may present some training opportunities for COs, especially in the technical aspects. RFPs are characterized by requirements, statement of work, delivery schedule, fixed price, cost only rules, etc., as well as technical requirements (involving lots of information exchange between contracting engineers and government engineers who meet twice per year).

The SME stated that *training is needed but should not be mandatory because contracting SMEs would be burdened by more requirements.* People may be more likely to comply if they are given clear guidance and flexible choices, such as core-plus. Training requirements should come down the chain of command from the Department of the Navy Acquisition Career Management level. International contracting should not be included in entry-level training requirements. Students must be experienced and competent in the core contracting requirements (probably 3 to 4 years into their careers) before they can maneuver through the complexities of international contracting.

## Warner Robins Air Force Base (AFB), Air Logistics Center (ALC), Engineering

The SME from WR ALC has training and experience in PM, LCL, and SPRDE and currently works international FMS cases full time. The SME has taken training through both DAU and DISAM. He emphasized that there is a big IA training gap in the area of Pseudo-FMS. Other areas in which training would be helpful include safety flight engineering, system qualifications, international engineering personnel advisor/consultant, interfacing with international contractors to handle engineering requests and approvals, operating within the rules of the LOA, and foreign disclosure.

The SME said that international training is critical. Service components may do things one way, but in the SA/SC world, things are done differently. There are differences with respect to foreign country requisitions and there are different expectations. The international acquisition workforce needs specialized training to understand the system, including waivers, political interests, and political pressures. Both formal IA training and on the job experiences are valuable.
The SME said that the ALC currently uses DISAM for basic international training—SAM ISPR-OL and Security Cooperation Management (SCM)-OC. Managers prioritize higher level/in-depth training for those who travel. IA certification (through DISAM) is only pushed for permanent international staff working 100 percent IA. There’s no push

for technical staff to get IA certification, but training is needed for any staff involved in international activities.

As for training format, the SME said that the online format is good for lower level training. Higher level IA training needs to foster dialogue between students who can share from their experiences and bring something beneficial to class. Triservice dialogues are very helpful and show the different ways the variety of cases are handled.

The SME said that DAU and DISAM have different international training roles, and both add value. On one hand, DAU training is focused on international cooperation products or research centers. DAU training is broad and serves as a good overview or refresher for a smaller subset of the IA workforce. It does not provide the depth of training that is required day to day in the larger international acquisition workforce. DISAM training, on the other hand, is not highly visible and not familiar to many people. DISAM serves a limited and restricted audience. The IA workforce benefits from DAU, DISAM, and PME, or leadership training. Ideally, the schools, DAU and DISAM, need to coordinate course syllabi and work together.

Another issue mentioned by the SME is that international training has no tracking requirements and there is no *real incentive to pursue international training* unless a supervisor requires it for the job. Individuals with international training often use their resumes to document their IA training.

The SME said that the acquisition workforce has many different levels of international activity, so training needs to be flexible and readily accessible. It would be beneficial for all career fields to incorporate *international lessons* into the core required career field courses to build greater awareness of international acquisition activity. The SA/SC acquisition workforce needs to be exposed to international concepts before they are put into a situation in which they need to interact on any level with international customers. Acquisition workforce members may be asked to support PMs, logisticians, or perhaps item managers with international customers requesting spares, or asking questions that require reach back (e.g., systems, spares, *requirements* that must be dealt with). Also, sometimes part-time SA positions are funded by FMS contracts and they must support foreign sales.

According to the SME, different members of the acquisition workforce in the various training level series—200s, 300s, 400s (Executive Level)—require different degrees of international training. However, all acquisition workforce members need some exposure to international training at a *basic level*, especially technology transfer and export control. Some members of the IA workforce need more *in-depth* security training in such areas as foreign disclosure, data rights, data transfer, and missile technology control. These training issues are now being worked out, and it would be beneficial for DAU and DISAM to work together.

## AFMC Warner Robins ALC, Security Assistance Program Manager (SAPM) Office

The SAPM's background is LCL Level III and engineering. He discussed a variety of international-related training issues. The first issue is that the training organizations with which DAU and DISAM are stovepiped have significant content overlaps, creating resource and training inefficiencies.

PMs are responsible for managing all career fields and should be exposed to all career field basic requirements. An introduction to the career fields (including IA related content) should be a mandatory training requirement for PMs. Currently, there is no requirement for PMs to learn anything about other career fields, and it's a significant issue.

The SAPM said that contracting is a big problem area in terms of international training and awareness. Not only is training lacking for contracting professionals, but other SMEs don't know how contracting fits into the international cases. Contracting rules for IA differ widely. Issues result from money that doesn't expire, contracting terms that differ, international laws that create conflicts, and differing rules and timeframes.

Contracting officer POCs say that they have a hard time getting into the DISAM courses if they work part international and part regular acquisition. Some problems result from contracting professionals having a variety of roles. For example, fund managers and procurement officers have different functions, so they require different training. The DISAM SAM-OC fulfills basic requirements.

The SME believes that the following courses should be required for people working international programs: DAU PMT 202, 203 (ITAR), 204 (Workshop Capstone), 400 series for senior leadership, and the online international armaments cooperation (CLIs). However, the issue remains that, if individuals have completed DISAM training, there will be considerable content overlap.

The SME believes that training should be based on requirements, and it should be standardized, tested, and tracked so that the managers support and value it more. Certifications currently have little value for career progression. Although jobs may be coded as international, workers have 24 months to get acquisition training and can request a waiver for another year. The workforce member could be in another position before any training has occurred, so there's little or no incentive for people to get the IA training they need.

The SME said that new staff members typically come into an international case without training, and there's no list of IA qualified workforce members. DAU maintains acquisition certifications in personnel file for those coded LVL II and III. However, the personnel records don't reflect international training. International training may at times be listed under "other certifications," just as a "real estate license" is, and typically goes unnoticed.

## Wright Patterson Air Force Base Schoolhouse

The SME interviewee representing the Air Force Security Assistance Center (AFSAC) is a logistics expert who specializes in monitoring and maintaining international FMS cases.

The SME has been trained in high-level (triservice) courses through DISAM. In addition, AFSAC has provided USAF specific training that deals with the day-to-day tasks of FMS case managers. DISAM is best equipped to provide *continual* training in conjunction with DSCA specific needs. AFSAC primarily deals with LOAs, not IC training, which is likely handled to some degree by DISAM, SAF IA, and DSCA.

The SME stated that, in general, international courses are added to the career field curriculum but *international has enough unique nuances that it should have its own career field path.* A vast amount of training content is dedicated to SA, especially through DISAM, a lot of functional training goes on internally, there are various unique desk guides, as well as numerous and constant IA policy changes.

According to the SME, IA training has value cross-functionally. For example, a Security Assistance Program Manager (SAPM) in charge of an India FMS case needs to understand and apply functional expertise from across the career fields. First and foremost, a SAPM needs to understand foreign disclosure laws and policy changes.

In addition, international affairs and IA training work together because understanding of international affairs helps determine how to do what needs to be done before the acquisition step.

The SME was adamant that SA is a huge endeavor and with many different international-related training needs. The SME stated that there are well over 400 people at Wright Patterson alone working on major FMS cases and others are working on smaller cases. Computer-based training (CBT) is being developed to meet the demands of three *acquisition* product centers and three *sustainment* logistics centers, as well as the smaller outfits.

# Policy and training

## DISAM Commandant

DISAM (voluntary program) IACP (International Affairs Certification Program) and DAWIA certifications are currently not interchangeable. DISAM is looking to enhance the certificate program but struggles because there's no legal authority. DISAM hopes to work with DAU to facilitate the international piece within DAWIA.

An SC, OSD policy task force policy is looking into various training and certification issues. DISAM is tasked under a top 10 OSD initiative looking at the security cooperation workforce to determine how many are trained/not trained. DISAM is putting together a database with 10,000 positions with billet number/names, requiring constant maintenance. *By the end of September 2011, they need to have 95 percent trained; however, most of these are not acquisition professionals*.
There is some overlap of acquisition professionals (those who acquire materials for U.S. partners) in the security cooperation workforce of *about 25 percent*. The other SA professionals are involved in relation-building (military to military events) and providing equip-

ment (that has been acquired by someone else) and training to our partners not in defense acquisition.[1]

The DISAM Commandant said it's difficult to ascertain what is dual-certified between DISAM IACP and DAWIA because the student databases don't mesh. This makes it difficult to find people suitable for certain critical acquisition jobs. For example, the previous 3-star at DSCA, Jeffrey A. Wieringa (VADM), needed to find 3 O6s, O5s, DISAM graduates, Security Officers with overseas and acquisition experience—a task that took tremendous effort. It took a search of 80,000 student records and reliance on past connections in the IA world to finally track down 1 Air Force man who took the assignment in Afghanistan.

## DAU SPRDE (SE/PSE) and S&T Management

SPRDE and S&T management SMEs said that international acquisition training is very important and both SPRDE and S&T have recently begun to incorporate IA content into required course lessons. The SPRDE Technical Leadership in Systems Engineering (SYS 302) course lesson covers a range of IA topics from general IA to more specific, including export control authority, technology, and information and data exchange. S&T Science and Technology Manager (STM 202) course lessons focus more deeply on technology transfer and technology security content.

In particular, the SPRDE SME discussed how important early design considerations are, especially considering the role of the systems engineer. The SME emphasized the high cost ($1.2 billion) of fixing a design failure involving the B2 radar that was unable to achieve spectrum clearance. The SYS 302 course IA lesson specifically addresses *Design Considerations*. The S&T Management SME discussed various technology/data protection and publishing issues. For example, in some cases, classroom content is limited because of foreign student (e.g., FOUO) and contractor (e.g., competition sensitive) participation. As a result, course content revisions, which are controlled by the FIPTs, occur frequently because course content is aligned with DOD policy.

## DAU Contracting Office

The DAU Contracting Director reported that his IA training was appropriately learned on the job (OJT) and just in time (JIT) for the needs of the assignment. International country specific/host nation matters were relayed through standardized briefings. Recent contracting competency models only reported one international competency, although there are likely many others.

Currently, international-related material is included in CON 090, which introduces the students to the FAR and DFAR. The lessons discuss various laws, such as Buy American and the Berry Amendment. The staff mentioned that it's difficult to find experts to teach

[1] Dr. Mark T. Ahles, Dean of Academic Affairs (DISAM), March 23, 2011.

these modules and that these topics are often controversial and incite many disagreements with the content. The contracting with Canada course has been discontinued.

It may be difficult to justify formal IA training for contracting because the international contracting workforce is a very small subset of contracting. Priority is the key for IA training for contracting professionals. Contracting is a continual process—constantly changing laws and time-critical issues—so focus is required. Any training would have to be on an as-the-need-arises basis.

Contracting officers in Major Weapons Programs also take the PM course requirements. The staff agreed that certain KO positions working closely with PMs, life-cycle logisticians, and SPRDE on international programs at the 50-percent and above threshold level should be in the same training as PMs. They said that these positions should be identified and coded as international so that they get first priority seating in the training courses.

The SMEs said that CLMs provide a shared resource for the entire workforce that may include international content. The international training, such as the IACP, is too generic to be of much value to someone working the contracting complexities of an international program. International contractors need specific information about the partners and host nations, which changes frequently. The contracting staff SMEs believe that OJT and JIT is the best way to approach international training for contracting because of the many country-specific requirements (e.g., host nation issues, special agreements, and contract clauses) and constantly changing requirements that happen from year to year or from event to event. There can be many differences not only between the various nations but also by major weapon system.

In terms of training content, contracting SMEs agree that an international web portal for the career fields would be very helpful. It should contain general high-level content about international acquisition, commonly asked questions, lessons-learned features, and a chat feature. A training format similar to those for contingency contracting offered to CORs is a good choice because the courses provide the basics and the advanced concepts that CORs need when dealing with host nations. Most CORs, except for a small subset, are not in AT&L. Likewise, most CORs are not working international programs, which for the most part are Major Weapons Systems programs. CORs are technical experts assigned to local contracting offices who handle mostly “buying of services” and construction activities. CORs are not counted as part of the contracting acquisition career field. The SMEs said that relatively few CORs are involved with Major Weapons Systems and even fewer are involved with international programs. CORs are trained in DAU contracting courses but JPOs provide them with specific host nation training.

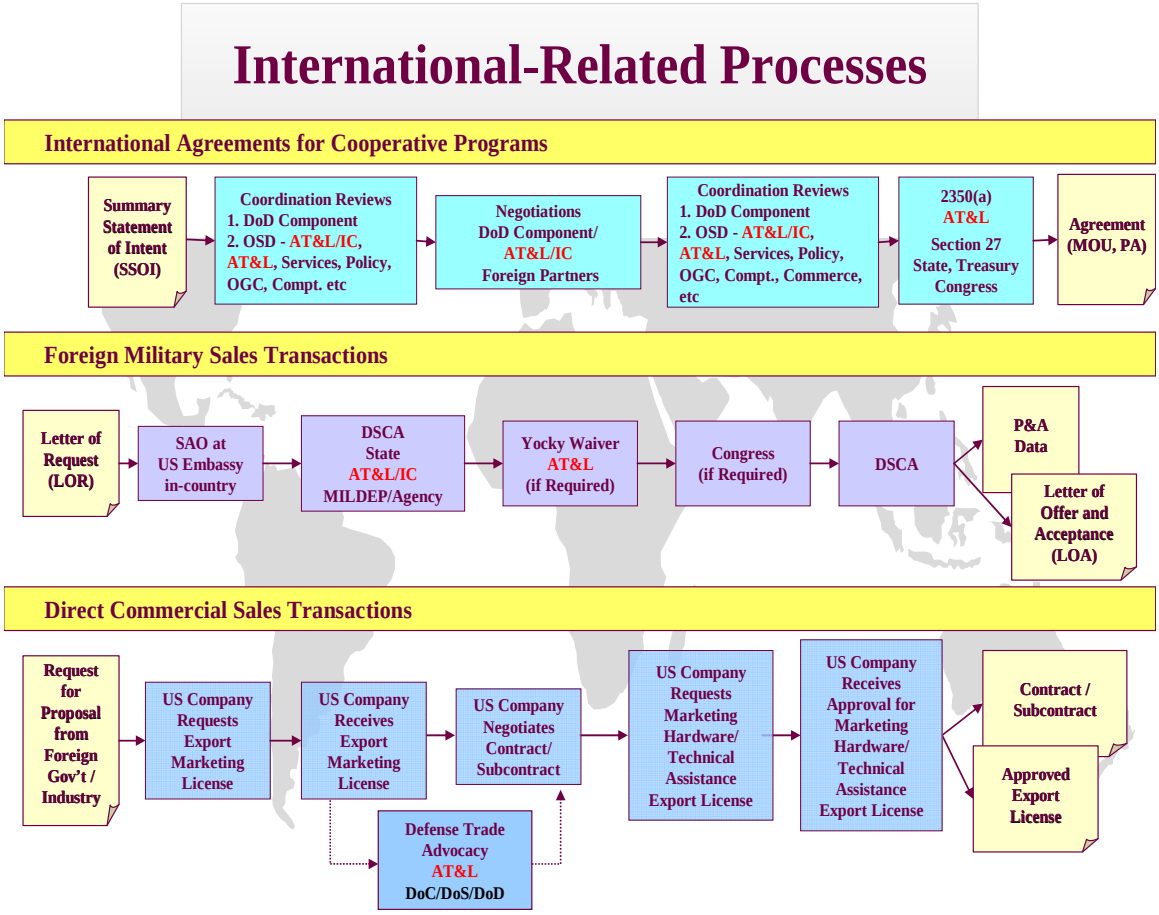
## Defense Procurement and Acquisition Policy (DPAP)

DPAP is responsible for all Contracting and Procurement policy matters in the Department of Defense (DOD). The SME representing DPAP said that currently the priority initiative for contracting is to bridge a *competency gap*. A *bathtub effect* is occurring in the contracting workforce as senior and entry level professionals outnumber mid-level professionals. Although IA training is not a high priority, some courses may address international content; however, since course lessons/offerings are *continually changing/evolving* with emerging requirements, it's difficult to keep up with course objectives. Some IA applicable course content may be found in CON 90, which addresses FAR-25 and DFAR- 225 (including international contracting regulation); CON 216; CON 214; Contracting Law; Continuous Learning Courses (CLCs) with international applications; Contracting with Canada; Berry Amendment; Buy American; and CUI – Control of Unclassified and Sensitive Information.

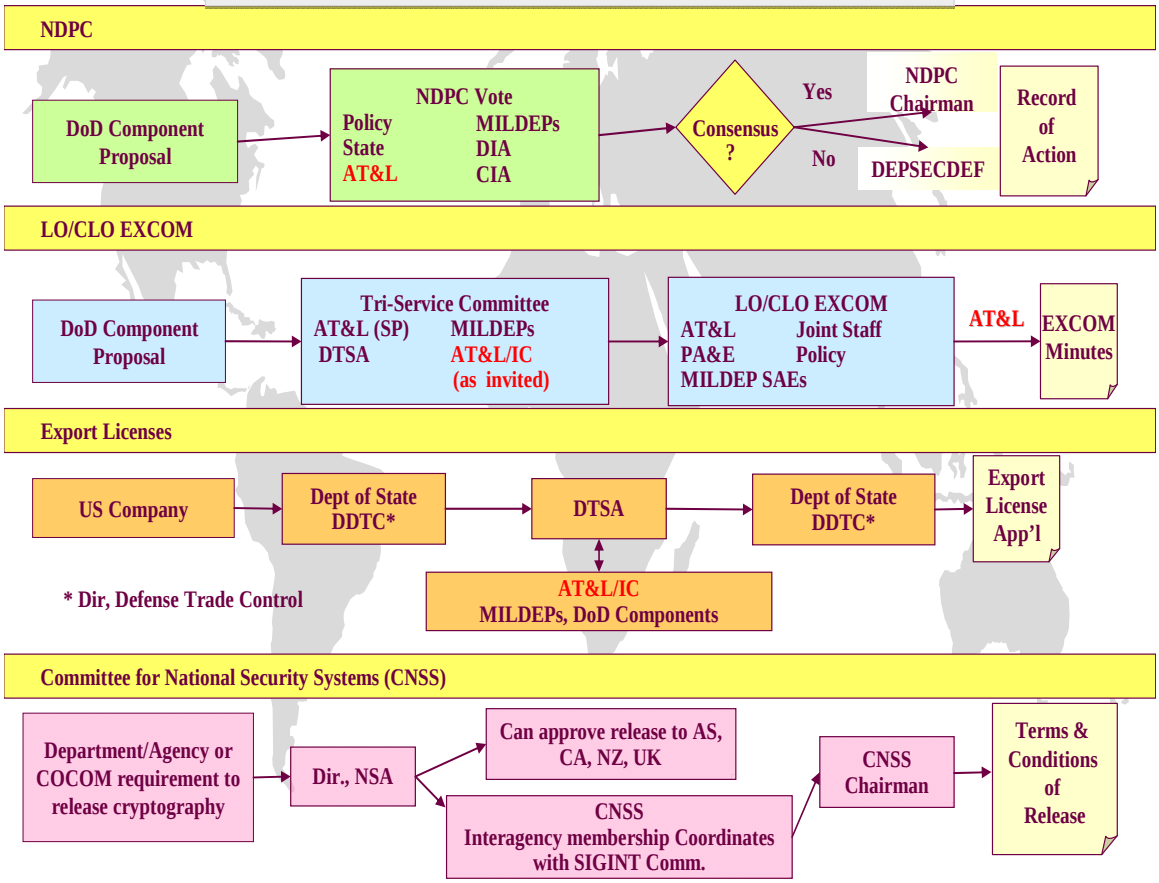
The DPAP SME said that, in addition, there are several possible new areas for international training, including restrictions on specialty metals (10 USC 2533b) and export control. The SME also thinks that the contingency contracting courses should be considered because they address international contracting issues, even though they deal primarily with U.S./international alliances. The SME stated that much of contracting deals with what you can't do, and most of the parameters are already set within international agreements, MOUs, and MOAs. Also, the FAR-15 lays out previously negotiated contract terms under competitive arrangements.

The DPAP SME said that not many contracting professionals need an entirely separate IA course but suggested we discuss this with those actually working international programs. Contracting officers may benefit from offerings such as those of the IACP because they sometimes need a broad knowledge base rather than specifics. KOs need a *specific subset of knowledge* rather than a skill set. The SME commented that, if anything, KOs need quick, ready access to information, such as that offered by CLCs, CLMs, and online course options.

# Appendix D: International Acquisitions Processes [3]



# Technology Transfer Processes



# Appendix E: Integrated Product Support Elements

| Integrated Product Support Element | Activities |
|---|---|
| 1. Product Support Management | 1.1. Warfighter and maintainer requirements capture<br>1.2. Alliance Management<br>1.2.1. Public Private Partnership (PPP)/Third Party Logistics (3PL) management<br>1.2.2. International Partners<br>1.2.3. Foreign Military Sales (FMS)<br>1.3. Contract Development and Management<br>1.3.1. Develop and maintain a Product Support Agreement (PSA) with the Warfighter<br>1.3.2. Develop and maintain PSAs with the Product Support Integrators (PSIs)<br>1.4. Supportability Test and Evaluation<br>1.5. Development and maintenance of Sustainment Business Case Analyses (BCAs)<br>1.6. Logistics Trade Studies<br>1.7. Product Support Performance Management<br>1.7.1. Manage balanced performance metrics<br>1.7.2. Sustainment metrics reporting<br>1.8. Product Support Budgeting and Funding<br>1.8.1. Budget execution<br>1.8.2. Budget management<br>1.8.3. Mid-year review justification<br>1.9. Total Ownership Cost (TOC) Management<br>1.10. Planning Management<br>1.10.1. IPT Management<br>1.10.2. Independent Logistics Assessment (ILA) Management<br>1.10.3. Life Cycle Sustainment Plan (LSCP) development and management<br>1.10.4. Milestone Gate Review Management<br>1.11. Portfolio Transfer Planning and Transfer Execution<br>1.12. Logistics Policy Implementation<br>1.13. Configuration Management<br>1.13.1. Configuration identification and baseline maintenance<br>1.13.2. Configuration control<br>1.13.3. Configuration Status Accounting |

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| | 1.13.4. Configuration auditing<br>1.14. Performance based Life Cycle Product Support (PBL)<br>1.15. Continuous Process Improvement (Lean Six Sigma, Theory of Constraints, etc.) |
| 2. Design Interface | 2.1. Standardization and interoperability<br>2.2. Engineering data analysis<br>2.3. Net-centric capability management<br>2.4. Reliability, availability, maintainability (RAM) design<br>2.5. Producibility<br>2.6. Supportability/Sustainability<br>2.7. Deployability management<br>2.8. Human Systems Integration (HSI)<br>2.8.1. Human Factors Engineering<br>2.8.2. Personnel<br>2.8.3. Habitability<br>2.8.4. Training<br>2.8.5. Safety and Occupational Health plan development and management<br>2.9. Environmental management<br>2.10. Warfighter/machine/software/interface/usability management<br>2.11. Survivability and vulnerability management<br>2.12. Affordability<br>2.13. Modularity and Open Systems Architecture (MOSA)<br>2.14. Corrosion control and prevention<br>2.15. Nondestructive inspection<br>2.16. Hazardous material management<br>2.17. Energy management |
| 3. Sustaining Engineering | 3.1. Post deployment ongoing operational data analyses<br>3.2. Engineering considerations<br>3.2.1. Relation to Systems Engineering<br>3.2.2. Engineering and Technical Support<br>3.3. Analyses<br>3.3.1. Safety hazards<br>3.3.2. Failure causes and effects<br>3.3.3. Reliability and maintainability trends<br>3.3.4. Operational usage profiles changes<br>3.4. Root cause analysis of in-service problems such as:<br>3.4.1. Operational hazards<br>3.4.2. Corrosion effects<br>3.4.3. Reliability degradation |

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| | 3.4.4. Special Considerations for Software Sustainment Engineering<br>3.5. Development of required design changes to resolve operational issues<br>3.6. Materiel Improvement Plan (MIP) review boards<br>3.7. DMSMS mitigation<br>3.7.1. Parts obsolescence<br>3.7.2. Technology Refresh<br>3.7.3. Technology insertion<br>3.8. Engineering dispositions<br>3.9. Technical manual and technical order updates<br>3.10. Repair or upgrade vs. disposal or retirement<br>3.11. Maintenance evaluation automation<br>3.12. Failure Reporting, Analysis and Corrective Action System (FRACAS) |
| 4. Supply Support | 4.1. Initial provisioning<br>4.2. Routine replenishment management, including buffer and safety stock management<br>4.3. Demand forecasting and Readiness Based Sparing (RBS)<br>4.4. Bills of Material management and maintenance<br>4.5. Support equipment initial provisioning<br>4.6. Support equipment routine replenishment provisioning<br>4.7. Reparable, repair part, and consumable procurement<br>4.8. Cataloging<br>4.9. Receiving<br>4.10. Storage<br>4.11. Inventory management<br>4.12. Transfer<br>4.13. Issuance<br>4.14. Redistribution<br>4.15. Disposal<br>4.16. Material pricing<br>4.17. Total Asset Visibility/AIT<br>4.17.1. Serialized Item Management (SIM)<br>4.17.2. Item Unique Identification (IUID)<br>4.17.3. Radio Frequency Identification (RFID)<br>4.18. Shelf Life Management<br>4.19. Buffer Management<br>4.20. Warranty Management<br>4.21. Supply Chain Assurance<br>4.21.1. Counterfeit material prevention<br>4.21.2. Malicious hardware and software prevention |

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| | 4.21.3. Unauthorized technology transfer prevention |
| 5. Maintenance Planning and Management | 5.1. Maintenance Concept Design<br>5.2. Core capability management<br>5.3. Title X 50/50 management<br>5.4. Public-Private Partnerships<br>5.5. Maintenance execution<br>5.6. Level of repair analysis – hardware<br>5.7. Level of repair analysis – software<br>5.8. Failure Modes Effects and Criticality Analysis (FMECA) Required repair times determination<br>5.9. OPTEMPO variance management<br>5.10. Routine versus battle-damage repair management<br>5.11. Built-in and manual testability management<br>5.12. Inter-service, organic, and contractor mix of repair responsibilities<br>5.13. Condition Based Maintenance Plus (CBM+); Diagnostics, Prognostics & Health Management<br>5.14. Reliability Centered Maintenance (RCM)<br>5.15. Depot Workload Allocation, Planning, Activation, and Execution |
| 6. Packaging, Handling, Storage, and Transportation (PHS&T) | 6.1. Short and long term preservation<br>6.2. Packaging requirements determination<br>6.3. Containerization requirements determination<br>6.4. Shelf life requirements determination<br>6.5. Handling requirements determination<br>6.6. Transportation requirements determination<br>6.7. Environmental control requirements determination<br>6.8. Physical shock control requirements determination<br>6.9. Static shock control requirements determination<br>6.10. Security classification requirements determination<br>6.11. Container Reutilization<br>6.12. Marking |
| 7. Technical Data | 7.1. Engineering data maintenance<br>7.2. Specifications determination<br>7.3. Standards management<br>7.4. Data Item Descriptions (DID) management<br>7.5. Technical standards development and management<br>7.6. Embedded Technical Data Systems<br>7.7. Technical manuals (TMs) including Interactive Electronic Technical Manuals (IETMs) management<br>7.7.1. S1000D Implementation<br>7.8. Engineering drawings management<br>7.9. Data rights management |

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| | 7.10. Data delivery<br>7.11. Proprietary data management<br>7.12. Data validation<br>7.13. Data storage and backup |
| 8. Support Equipment | 8.1. Manual and automatic test equipment management<br>8.2. Equipment design<br>8.3. Equipment commonality management<br>8.4. Maintenance concept integration<br>8.5. Ground handling and maintenance equipment management<br>8.6. Equipment capacity determination<br>8.7. Air conditioners requirement determination and management<br>8.8. Generators requirement determination and management<br>8.9. Tools requirement determination and management<br>8.10. Metrology and calibration equipment requirement determination and management<br>8.11. Deployability requirement determination management<br>8.12. Automatic Test Systems<br>8.13. Support Equipment Integrated Product Support |
| 9. Training & Training Support | 9.1. Initial, formal, informal, and On the Job Training (OJT) individual, crew, and unit New Equipment Training (NET)<br>9.2. Initial, formal, informal, and OJT individual, crew, and unit Institutional training<br>9.3. Initial, formal, informal, and OJT individual, crew, and unit Sustainment training<br>9.4. Initial, formal, informal, and OJT individual, crew, and unit Displaced Equipment Training (DET)<br>9.5. Embedded training insertion and management<br>9.6. Computer Based Training<br>9.7. Distance Learning<br>9.8. Training Equipment<br>9.9. Train the Trainer<br>9.10. Simulator Sustainment |
| 10. Manpower and Personnel | 10.1. Identification and acquisition of required numbers of active and reserve military officers and enlisted personnel as well as civilian personnel with the skills and grades required for system operation<br>10.2. Identification and acquisition of required numbers of active and reserve military officers and enlisted personnel as well as civilian personnel with the skills and |

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| | grades required for system maintenance<br>10.3. Identification and acquisition of required numbers of active and reserve military officers and enlisted personnel as well as civilian personnel with the skills and grades required for system support<br>10.4. Wartime versus peacetime personnel requirements determination and management<br>10.5. Additional personnel identification and justification process management |
| 11. Facilities & Infrastructure | 11.1. Facilities Plan Management<br>11.1.1. Facilities and facility improvement studies design and execution for every IPS Element (i.e., Maintenance Planning and Management, Computer Resources, Training & Training Support, etc.)<br>11.1.2. Location selection<br>11.1.3. Space requirements determination<br>11.1.4. Environmental requirements determination<br>11.1.5. Security requirements determination<br>11.1.6. Utilities requirements determination<br>11.1.7. Storage requirements determination<br>11.1.8. Equipment requirements determination<br>11.1.9. Existing versus new facilities determination<br>11.2. Site activation |
| 12. Computer Resources | 12.1. Manage and update the Program‘s Computer Resources Support Management Plan (CRSMP) when major system changes occur. The following items should be considered:<br>12.1.1. Mission critical computer hardware/software operation and support<br>12.1.2. Management reports development and maintenance<br>12.1.3. Disaster recovery planning and execution<br>12.1.4. Computer resource working group standup and management<br>12.1.5. Computer programs and software baselines management<br>12.1.6. Computer programs and software modifications management<br>12.1.7. Software licenses management<br>12.1.8. Software and hardware obsolescence management<br>12.1.9. Defense Information Switch Network (DISN) or other network connectivity requirements determination and management |

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| | 12.1.10. Specifications determination<br>12.1.11. Flow/logic diagrams determination<br>12.1.12. Computer Software Configuration Item (CSCI) definitions determination<br>12.1.12.1. CSCI test descriptions<br>12.1.12.2. CSCI operating environments<br>12.1.12.3. CSCI user/maintainer manuals<br>12.1.12.4. CSCI computer code<br>12.1.13. Automated Identification Technology management<br>12.1.14. Electronic Data Interchange (EDI) management<br>12.1.15. Service Level Agreements (SLAs) management<br>12.2. Electromagnetic Interference (EMI), Electromagnetic Pulse (EMP)<br>12.3. System Security/Information Assurance |

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# Appendix F: SPRDE (SE and PSE) job responsibilities by certification levels

## SPRDE (SE)

### Level I

- Plans, organizes, and conducts engineering activities relating to the design, development, fabrication, installation, modification, sustainment, and/or analysis of systems or systems components for a functional specialty (i.e., reliability and maintainability, systems safety, materials, avionics, structures, propulsion, chemical/biological, human systems interfaces, weapons, etc.).
- Demonstrates how systems engineering technical processes and technical management processes guide engineering activities for a functional specialty.
- Plans, organizes, and conducts engineering activities relating to the design, development, and/or analysis of software and information technology systems or systems components. (Software/IT Engineer)
- Demonstrates how systems engineering technical processes and technical management processes guide software development and/or IT integration activities.
- Plans, organizes, and conducts engineering design and development activities for systems or systems components. (Developmental Engineer)
- Demonstrates how systems engineering technical processes and technical management processes guide design and development activities.

### Level II

- Organizes, conducts, and/or monitors engineering activities in a functional specialty relating to the design, development, fabrication, installation, modification, sustainment, and/or analysis of systems or systems components.
- Analyzes, conducts, and/or monitors engineering activities in a functional specialty relating to the design, development, fabrication, installation, modification, sustainment, and/or analysis of systems or systems components.
- Applies systems engineering technical and technical management processes to a functional specialty in IPT environments.
- Organizes, conducts, and/or monitors engineering activities relating to the design, development, and/or analysis of software and information technology systems or systems components. (Software/IT Engineer)
- Applies systems engineering technical and technical management processes to software and IT development.
- Organizes, conducts, and/or monitors engineering design and development activities for systems or systems component.(Developmental Engineer)

- Applies systems engineering technical and technical management processes during systems development.

### Level III

- Leads and/or manages engineering activities in a functional specialty relating to the design, development, fabrication, installation, modification, sustainment, and/or analysis of systems or systems components.
- Ensures that appropriate systems engineering technical and technical management processes are properly applied to functional specialty activities that support IPT environments. Software/IT Engineer Leads and/or manages engineering activities relating to the design, development, and/or analysis of software and information technology systems or systems components.
- Ensures that appropriate systems engineering processes are properly applied to software development and/or IT integration activities.
- Leads and/or manages design and development activities for systems or systems components.(Developmental Engineer)
- Ensures that appropriate systems engineering processes are properly applied during systems development.

## SPRDE (PSE)

### Level I

- Demonstrates how systems engineering technical and technical management processes apply to acquisition programs.
- Interacts with program IPTs regarding the proper application of systems engineering processes.
- Develops systems models and work breakdown structures; uses top-down design and bottom-up product realization.
- Sustainment Program Systems Engineer Demonstrates how systems engineering processes apply while working in a program office or user support team supporting in-service, out-of-production systems.
- Interacts with user support teams regarding sustainability and reliability/maintainability improvements on fielded systems.

### Level II

- Applies systems engineering technical and technical management processes in IPTs. Develops program/project systems engineering plans, etc.
- Applies systems engineering processes in program offices and/or user support teams for in-service, out-of-production systems. Develops system upgrade/modification plans to support new or interoperability requirements.(Sustainment Program Systems Engineer)

- Develops obsolescence mitigation, technology insertion/modernization, reliability/maintainability improvement, etc., plans, as appropriate.

## Level III

- Analyzes and applies processes while integrating multiple domains (analytic or engineering specialties) at a system or systems-of-systems level.
- Leads and/or manages systems engineering activities, develops systems engineering plans, and leads and facilitates IPTs.
- Demonstrates excellence in management, leadership, communications, and briefing skills. Sustainment Program Systems Engineer Leads and/or manages systems engineering activities for programs supporting in-service, out-of-production systems.
- Analyzes and applies systems engineering processes in planning and execution of obsolescence mitigation, system upgrades and modifications, technology insertion, modernization, sustainability, reliability/maintainability improvements, etc., as appropriate.
- Demonstrates excellence in management, leadership, communications, and briefing skills.

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# Appendix G: International acquisition training progress – Summary of implementation for assessed career fields

| Career Field | Current Status |
|---|---|
| Program Management | Stage 6<br>10 hours on-line (CLI 001, 002, 003, 004, CLI 007), and 3 one-week resident courses (PMT 202, 203 & 304) |
| Life Cycle Logistics | Stage 4<br>2 hours on-line (CLI 007) and 2 one-week resident courses (PMT 202 & 203) |
| SPRDE – Systems Engineering / Program Systems Engineer | Stage 2<br>SYS 302 |
| SPRDE – S&T Management | Stage 2<br>STM 202 |
| Contracting | Stage 1-2<br>CON 090<br>4 hours on-line (CLC 027 and CLC 125)<br>Course under development - Contracting in FMS |

<u>IACP Implementation Stages</u>

0. No IA competencies or lessons
1. No IACP - IA competencies and lessons found *primarily* in continuous learning modules
2. No IACP – IA competencies and lessons embedded in required Career Field courses
3. No IACP – IA competencies and lessons embedded in required Career Field courses and continuous learning modules
4. No IACP - core plus IA training recommended in DAU Catalog
5. IACP in place and visible with recommended core plus courses
6. IA Career Path (IACP) in place with mandatory courses

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# Glossary

| | |
|---|---|
| ACAT | Acquisition Category |
| ACO | Administrative Contracting Officer |
| ACSA | Acquisition Cross-Servicing Agreements |
| AECA | Arms Export Control Act |
| AFIT | Air Force Institute of Technology |
| AFMC | Air Force Material Command |
| AFSAC | Air Force Security Assistance Center |
| ALC | Air Logistic Center |
| ASN | Assistant Secretary of the Navy |
| AT&L | Acquisitions, Technology & Logistics |
| | |
| BCEFM | Business, Cost Estimating, and Financial Management |
| | |
| CAP | Critical Acquisition Positions |
| CAS | Contract Administration Services |
| CL | Continuous Learning |
| CLC | Continuous Learning Contracting |
| CLO | Counter Low Observable |
| CLM | Continuous Learning Module |
| COCOM | Combatant Commander |
| COPs | Communities of Practice |
| COR | Contracting Officer's Representative |
| COTS | Commercial Off The Shelf |
| CPP | Cooperative Program Personnel |
| CRADA | Cooperative Research and Development Agreement |
| CSTO | Country Standard Technical Order |
| CWP | Coalition Warfare Program |
| | |
| DACM | Director, Acquisition Career Management |
| DAU | Defense Acquisition University |
| DAW | Defense Acquisition Workforce |
| DAWIA | Defense Acquisition Workforce Improvement Act (1990) |
| DCS | Direct Commercial Sales |
| DEPSECDEF | Deputy Secretary of Defense |
| DFAR | Defense Federal Acquisition Regulation |
| DFARS | Defense Federal Acquisition Regulation Supplement |
| DISAM | Defense Institute of Security Assistance Management |
| DL | Distance Learning |
| DMSMS | Diminishing Manufacturing Sources and Material Shortages |
| DOD | Department of Defense |
| DODI | Department of Defense Instruction |
| DOS | Department of State |

| | |
|---|---|
| DPAP | Defense Procurement and Acquisition Policy |
| DPEP | Data and Personnel Exchange Program |
| DSCA | Defense Security Cooperation Agency |
| DTUSD(P)PS | Office of the Deputy to the Under Secretary of Defense (Policy) for Policy Support |
| DTC | Delivery Term Code |
| | |
| EDA | Excessive Defense Articles |
| E.O. | Executive Order |
| EXCOM | Executive Committee |
| | |
| FAA | Foreign Assistance Act |
| FAR | Federal Acquisition Regulation |
| FCT | Foreign Comparative Testing |
| FIPT | Functional Integrated Product Team |
| FE | Facilities Engineering |
| FIPT | Functional Integrated Process Team |
| FMCS | Foreign Military Construction Services |
| FMF | Foreign Military Financing |
| FMS | Foreign Military Sales |
| FMSCR | Foreign Military Sales Credit |
| | |
| HN | Host Nation |
| HNS | Host Nation Support |
| | |
| IA | International Acquisitions |
| IA | International Agreements |
| IAC | International Armaments Cooperation |
| IACP | International Acquisition Career Path |
| IC | International Cooperation |
| ICD | Initial Capabilities Document |
| I/CPM | Industrial Contract Property Management |
| ICRAD | International Cooperative Research and Development |
| IC/USD(AT&L) | International Cooperation in the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics |
| IEP | Information Exchange Program |
| ILS | Integrated Logistics Support |
| IMET | International Military Education and Training |
| INCLE | International Narcotics Control and Law Enforcement |
| INCOSE | International Council on Systems Engineering |
| IPO | International Program Offices |
| IPS | Integrated Product Support |
| IPSR | International Program Security Requirements |
| IPT | Integrated Product Team |
| IT | Information Technology |

| | |
|---|---|
| ITAR | International Traffic in Arms Regulation |
| | |
| JIT | Just-in-Time Training |
| JPO | Joint Program Office |
| JSF | Joint Strike Fighter |
| | |
| KLP | Key Leadership Position |
| KO | Contracting Officer |
| | |
| LCC | Life-Cycle Cost |
| LCL | Life-Cycle Logistics |
| LCM | Life-Cycle Management |
| LO | Low Observable |
| LOA | Letter of Offer and Acceptance |
| Loggies | Logisticians |
| | |
| MAP | Military Assistance Program |
| MDAPs | Major Defense Acquisition Programs |
| MIDS | Multifunctional Information Distribution System |
| MILDEP | Military Department |
| MOA | Memorandum of Agreement |
| MOU | Memorandum of Understanding |
| | |
| NADR | Nonproliferation, Anti-Terrorism, Demining, and Related Programs |
| NDAA | National Defense Authorization Act |
| NDI | Non-Developmental Items |
| NDP | National Disclosure Policy |
| NIPO | Navy International Program Office |
| NSDM | National Security Decision Memorandum |
| | |
| OJT | On-the-Job-Training |
| O&S | Operations and Sustainment |
| OSD | Office of the Secretary of Defense |
| OUSD | Office of the Under Secretary of Defense |
| | |
| P | Policy |
| PA | Project Agreements |
| PBL | Performance-Based Logistics |
| PCD | Position Category Description |
| PCO | Procurement Contracting Officer |
| PEO | Program Executive Officer |
| PHS&T | Packaging, Handling, Storage, and Transportation |
| PKO | Peace Keeping Operations |
| PM | Program Management |
| PME | Professional Military Education |

| | |
|---|---|
| PMT | Program Management Training |
| POC | Point of Contact |
| PQM | Production, Quality, and Manufacturing |
| PS | Policy Support |
| PSM | Product Support Manager |
| | |
| RAM | Rolling Airframe Missile |
| RD&A | Research, Development and Acquisition |
| R&D | Research and Development |
| RDT&E | Research, Development, Test & Evaluation |
| RFP | Request for Proposals |
| | |
| SA | Security Assistance |
| SAF/AQH | Secretary of the Air Force/Acquisition Career Management SAF/AQH |
| SAF-IAPQ | Office of the Under Secretary of the Air Force International Affairs |
| SAM | Security Assistance Management |
| SAMM | Security Assistance Management Manual |
| SAPM | Security Assistance Program Manager |
| SC | Security Cooperation |
| SCM | Security Cooperation Management |
| SCO | Security Cooperation Offices |
| SECDEF | Secretary of Defense |
| S&I | Standardization and Interoperability |
| SME | Subject Matter Expert |
| SPRDE/SE | Systems Engineering, Research, Development and Engineering – Systems Engineering |
| SPRDE/PSE | Systems Engineering, Research, Development and Engineering – Programs Systems Engineers |
| SPRDE/STM | Systems Engineering, Research, Development and Engineering – Science and Technology Manager |
| S&T | Science and Technology Management |
| STM | Science Technology Manager |
| | |
| TAA | Technical Assistance Agreements |
| TCO | Termination Contracting Officer |
| T&E | Test and Evaluation |
| TEP | Test and Evaluation Program |
| TRDP | Test Research and Development Project |
| TT/EC | Technology Transfer/Export Control |
| TTSARB | Technology Transfer and Security Assistance Review Board |
| | |
| USG | U.S. Government |
| U.S.C. | United States Code |
| USD | Under Secretary of Defense |

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# List of figures

Figure 1: Officers and agencies involved in security cooperation ..... 14

Figure 2: Acquisition career fields as subsets of DOD functional communities ..... 30

Figure 3: The DOD civilian logistics workforce ..... 31

Figure 4: MonthlyLife-cycle logistician certification path ..... 34

Figure 5: Product Support IPTs are *cross-functional* and include the warfighter ..... 38

Figure 6: Defense Acquisition Management System ..... 56

Figure 7: SPRDE SE training ..... 57

Figure 8: SPRDE PSE training ..... 57

Figure 9: SPRDE S&T Manager Training ..... 59

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# List of tables

Table 1: IA types and level of international activity ..... 10

Table 2: Significant ongoing international cooperative program activity by military service component ..... 17

Table 3: Significant FMS activity by military service component ..... 17

Table 4: IACP competencies for program management ..... 23

Table 5: Certification level requirements for PM acquisition positions by service ..... 24

Table 6: Defense acquisition workforce career fields ..... 29

Table 7: LCL certification level requirements by service (FY 2009) ..... 32

Table 8: Acquisition workforce life-cycle logistics functional area ..... 32

Table 9: Potential DOD PSM requirements ..... 39

Table 10: Defense acquisition workforce career fields ..... 51

Table 11: Human Capital Fact Sheet 2009 – Breakdown of the DAW (SPRDE-SE/PSE) ... 52

Table 12: SPRDE (SE/PSE) defense acquisition workforce (Civilian/Military) composition ..... 53

Table 13: SPRDE (SE/PSE) (Civilian) workforce by occupational series ..... 53

Table 14: The role of Systems Engineering in System Life-Cycle Processes ..... 54

Table 15: Defense acquisition workforce career fields ..... 66

Table 16: Contracting defense acquisition workforce (Civilian/Military) composition ..... 66

Table 17: Contracting (Civilian) workforce by occupational series ..... 67

Table 18: Assessed career field theme similarities and differences ..... 87

Table 19: DAU representative training cost planning..... 90

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