



Defense Exportability Features Initiative

A New Paradigm for International Cooperation

Frank D. Kenlon ■ Jay Mandelbaum

Department of Defense (DoD) program managers (PMs) are now required to consider developing and incorporating Defense Exportability Features (DEF) into a system or subsystem likely to be exported to enable future U.S. Government-DoD International Cooperative Programs (ICPs), Foreign Military Sales (FMS) or Direct Commercial Sales (DCS) or other U.S. Government-authorized Building Partner Capacity (BPC) transfers.

Kenlon is a professor of international acquisition management (intermittent) in the Defense Systems Management College's International Department at the Defense Acquisition University, Fort Belvoir, Va. He retired from Department of Defense full-time employment as Director of International Negotiations in the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics in January 2013 after more than 35 years of service in various domestic and international acquisition positions in the U.S. Navy and the Office of the Secretary of Defense (OSD). **Mandelbaum** is a research staff member at the Institute for Defense Analyses, where he has been involved in studies of international cooperation, obsolescence management, value engineering, technology readiness assessments, manufacturing, systems engineering and acquisition for the last 10 years. He retired from the OSD systems engineering office in April 2004.

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Activities in support of this DEF requirement may be pursued throughout the acquisition life cycle but, in general, are more efficient and affordable when pursued during a program's early development phases. These activities can and should also be pursued during the Engineering and Manufacturing Development (EMD) phase of defense acquisition, as well as during product upgrade efforts for fielded systems that are authorized by the U.S. Government for export in support of USG foreign policy and national security objectives.

Fortunately, there is a process for DoD PMs to become a designated system in the DoD DEF Pilot Program initiative managed by the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD[AT&L]) that helps implement this recently issued change to DoD acquisition policy. This pilot program, for which programs are nominated by their Service Acquisition Executive (SAE) and selected by the Defense Acquisition Executive (DAE), allows appropriated dollars to be used to support the design and development of exportable variants of acquisition systems early in their life cycle. In particular, the Fiscal Year (FY) 2011 Na-

tional Defense Authorization Act (NDAA), as amended, and corresponding appropriations bills, established and funded pilot program efforts that focus on incorporating DEF-related technology protection features during the research and development phase (typically the Technology Maturation and Risk Reduction [TMRR] and early EMD phases) of the DoD acquisition process. These technology protection features provide the technical modifications necessary to protect critical program information (e.g., anti-tamper and information assurance), as well as differential capability changes required prior to U.S. Government-authorized export.

The details of these technology protection features vary as a function of the capabilities of the system, the critical program information or critical technologies used, and the prospective foreign partner or customer nations authorized for export. DEF Pilot Program funding covers the cost of the feasibility studies used by DoD to evaluate the business case for informing a decision on making such investments, as well as the cost of performing preliminary DEF design work; it does not currently include the costs for incorporating these features into production articles.

Beyond DEF Pilot Program participation, PMs always have the option of pursuing defense exportability design and development efforts using funding obtained through ICPs, FMS, DCS, or BPC transactions to implement defense exportability features outside of the DEF Pilot Program.

Why DEF Is Important

Section 2350a of Title 10, Subtitle A, Chapter 138, Subchapter 2, "Cooperative research and development agreements: NATO [North Atlantic Treaty Organization] organizations; allied and friendly foreign countries," identifies questions to determine the appropriateness of pursuing international acquisition and exportability to achieve the following traditional benefits:

- Building international military and economic partnerships
- Increasing interoperability
- Enhancing U.S. defense capabilities and influence by leveraging partner nations' defense investment and technologies
- Providing flexibility for DoD production and sustainment by maintaining active production and sustainment capability longer

The latter benefit has applicability to the defense industry from two perspectives—increasing contractors' revenue and profit and maintaining a healthy U.S. industrial base. However, if production capability is extended because most foreign sales could not be made during U.S. Government production, as has often been the case, there will be higher costs to export variants, a potential reduction in foreign sales, and suboptimized technology protection.

The new DEF authority facilitates a paradigm shift, potentially enabling allies to obtain DoD systems earlier than the more typical exportability process. Consequently DEF should enhance these traditional benefits in two important ways:

- By providing advanced capability to allies and coalition partners earlier, thereby improving upon the benefits listed in the first three bullets of the previous paragraph.
- By strengthening the DoD industrial base (the fourth bullet).

Furthermore, DEF enables an extremely significant additional benefit by potentially lowering the average procurement unit cost (APUC) that DoD pays for the system. APUC may be reduced for two reasons:

- A greater number of U.S. units may be purchased at a lower cost because the learning curve is extended.
- Combining U.S. and foreign production leads to larger lot sizes during full-rate production, resulting in economies of scale.

Figure 1 illustrates the potential APUC savings as a function of the ratio of foreign transfers to the U.S. procurement during full-rate production. The figure is based on a 90 percent learning curve, typical of defense electronics. Foreign production is assumed to start during the first year of full-rate production, and low-rate initial production quantities are assumed to be 10 percent of the U.S. procurement. The figure also assumes that the foreign variants have very high commonality with the U.S. version.

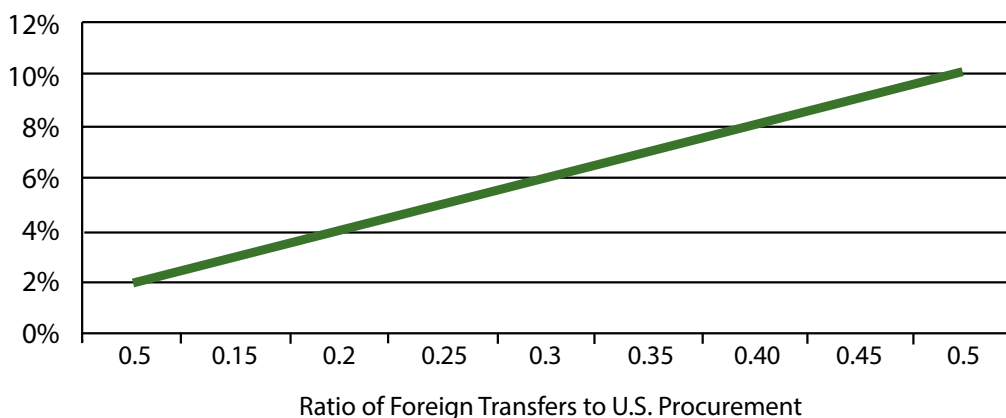
In recognition of all this, DEF was incorporated into the Better Buying Power (BBP) 2.0 as an initiative to control costs throughout the life cycle as follows:

Increase the incorporation of defense exportability features in initial designs:

Foreign sales of and cooperation on U.S. defense products provide a range of win-win benefits: reduced costs, improved U.S. competitiveness, stronger ties to friends and allies, and improved interoperability. Rather than waiting until products are fully designed and in production for U.S. use, we should assess and incorporate exportability design features and any needed anti-tamper features early in the acquisition process. This will reduce the cost of exportable versions of U.S. systems and ensure that they are available for sale sooner, benefiting all concerned.

While the DEF initiative is currently addressed in the Interim DoDI 5000.02 and *Defense Acquisition Guidebook (DAG)*, it is expected that the final version DoDI 5000.02 and the corresponding DAG changes, will provide additional DEF policy and implementation guidance to the DoD acquisition workforce as part of continuing BBP 2.0 DEF implementation

Figure 1. Percent Reduction in U.S. Average Procurement Unit Cost



under the BBP 3.0 initiative announced Sept. 19, 2014, by USD(AT&L) Frank Kendall.

Legislative History

As noted above, Section 243 of the FY 2011 NDAA, "Pilot Program to Include Technology Protection Features During Research and Development of Defense Programs," established the DoD DEF Pilot Program, including a requirement for an annual report to Congress regarding DEF Pilot Program efforts, including a list of each designated system in the program. The FY 2012 NDAA modified the law based on a request from DoD to require industry to bear at least half of the cost of any DEF

These studies would determine whether to proceed to a detailed design with a requirement to include export variants. The export variant may be the same as the U.S. baseline version, or the U.S. baseline may be designed in such a way as to make it easily adaptable to producing an export variant.

Evaluation of DEF Viability Using Pilot Program Results

DoD is using the results of DEF Pilot Programs to demonstrate and document key aspects of DEF viability. One area of potential analysis is whether DoD has (or will have) the ability to accurately assess its potential Return on Investment (ROI)



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Pilot contractual effort, to match U.S. Government expenditures. If the defense industry did not agree, there would be no investment from either party. In order to give the DEF Pilot Program adequate time to evaluate its impact, the FY 2014 NDAA extended the DEF Pilot Program five additional years to Oct. 1, 2020.

Based on subsequent feedback from the defense industry, DoD recently recommended another legislative change concerning the cost-sharing provisions. Industry indicated that a requirement for a fixed cost share may be a deterrent to DEF success. DoD agreed and is seeking the flexibility to adjust the cost-share requirement to levels appropriate to the particular situation. The draft FY 2015 NDAA currently under consideration on Capitol Hill includes a provision that would change the current 50-50 government-industry statutory DEF cost-sharing requirement to "an appropriate share of the cost of such activities, as determined by the Secretary."

DEF Activities

As of the December 2013 report to Congress, 16 acquisition programs have been nominated by their SAE and selected by the DAE to conduct DEF studies. The programs qualified for feasibility study funding based on the following criteria:

- High defense sales potential
- Significant military capability to build partner capacity
- Technology that requires export protection
- Component International Program Office validation

based on the fidelity of the information available from a DEF feasibility study. After a feasibility study, DoD must decide whether to include requirements for export variants in the statement of work for a competitive Milestone (MS) B request for proposal (RFP) or—for programs that have already entered the EMD phase—to modify the existing EMD contract. That decision should be based largely on the ROI to DoD. One of the objectives for DEF Pilot Programs is to produce feasibility studies that can provide sufficient data to make an ROI calculation meaningful to decision makers. ROI is calculated from the ratio of DoD investment to APUC reductions. Therefore, one aspect of DoD's evaluation of DEF viability will focus on whether feasibility studies can provide accurate answers to the following ROI-related questions for use in DoD acquisition decision making:

- Investment: Can the feasibility study determine what exportability features are needed, how they should be implemented and what that will cost? Can DoD determine the accuracy of these data?
- APUC reductions: Are the industry estimates of foreign transfers and APUC savings documented in the feasibility studies of sufficient fidelity for DoD to calculate ROI? Can DoD conduct an independent estimate of foreign transfers? Can APUC savings be validated?

DoD also is using pilot program results to develop repeatable best practices and standard operating procedures for effective integration of DEF into the overall operation of the defense acquisition system in areas such as:

- **Incentives and disincentives.** Prior to MS B, one of the principal goals of any program office is to accomplish what is necessary to become a program of record. This usually entails convincing decision makers that the program will meet cost, schedule and performance requirements. For most DoD programs, defense exports eventually will contribute to meeting these objectives. But the potential beneficial impact of foreign cooperation or sales is uncertain, particularly early in the program's life cycle. From a pilot program perspective, DEF is welcome because it adds visibility and a source of funds that will help the program achieve mid- to long-term affordability objectives. After MS B, however, international considerations are often deemphasized or postponed as a result of the inevitable technical challenges in detailed design and development. In developing standard operating procedures for integrating DEF into the defense acquisition

include: (1) How many export versions should be designed? (2) To what extent should prototypes be developed and tested? (3) What work should be part of the base contract? (4) What effort should be included in option Contract Line Items Numbers (CLINs)? (5) If option CLINs are used, what are the criteria for executing them? (6) To what extent will DEF information be used in evaluating proposals? (7) What has to be done to ensure that all bidders compete on an equal basis?

Conclusions


While the DEF initiative has the potential to change the international cooperation paradigm, it is still too early to gauge its success in doing so. The challenge ahead is to develop repeatable best practices and standard operating procedures for integrating DEF into the defense acquisition system. Fortunately,

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system, DEF Pilot Programs are intended to provide PMs incentives to design in exportability features early to save the program from higher redesign costs later, and to hold out the potential for lower APUCs through economic order quantities from foreign sales.

- **Sources of funding.** DEF Pilot Program results have already shown that moving beyond DEF feasibility studies and initial DEF designs into implementation during EMD will require additional sources of funding beyond the DoD DEF Pilot Program. Several potential funding sources for DEF efforts during EMD are being considered. Examples include foreign partner and/or customer funding; Defense Security Cooperation Agency's Non-Recurring Cost (NRC) Recoupment funding and (in limited circumstances) the Special Defense Acquisition Fund; Title 10 funds; and use of value engineering change proposals to implement DoD/contractor cost sharing for exportability modifications. If additional funding cannot be made available when needed, DoD's ROI may decrease (and foreign customer costs increase) due to the rework and delays required to add the necessary exportability features during production.
- **Contracting approaches.** DEF pilot program contractual activities to date have shown that structuring the DEF-related elements in a competitive EMD phase RFP is challenging but manageable. Examples of key issues that contracting officers should address in the RFP and contracting process

we understand that the USD(AT&L) is drafting a DEF Implementation Policy Memorandum that will address incentives for program offices to engage in international cooperation and sales, DEF Pilot Program nomination criteria, sources of DEF funding, contracting approaches and other standard operating procedures for execution of DEF in DoD programs. Results from current and future DEF Pilot Programs should be used to provide the data necessary to evaluate the likelihood of the initiative's success and to determine how to effectively implement future DEF activities. As USD(AT&L) Kendall stated in congressional testimony on April 20, 2014:

The BBP 2.0 program to increase the use of defense exportability features in initial designs is still in the pilot stage. The concept is sound, but implementation is difficult because of some of the constraints on our budgeting, appropriations and contracting systems. Support for U.S. defense exports pays large dividends for national security (improved and closer relationships), operationally (built in operability and ease of cooperative training), financially (reduced U.S. cost through higher production rates), and industrially (strengthening our base). This initiative will continue on a pilot basis, but hopefully be expanded as the implementation issues are identified and adjudicated. 

The authors can be contacted at: frank.kenlon@dau.mil and jmandel@ida.org.