

2010 Congressionally Directed Action

House Appropriations Committee, Subcommittee for Defense

From the classified annex on Intelligence and Other Classified Activities to accompany H.R. 3326 "Making Appropriations for the Department of Defense for the fiscal Year ending September 30, 2010 and for Other Purposes."

Space Industrial Base

Over the past year the Committee has received briefings about the state of the space industrial base. The analyses have concentrated on the major defense contractors; however, the Committee is concerned that the states of the 2nd and 3rd tier space system vendors have not been analyzed. The Committee directs the Director of the National Reconnaissance Office to conduct a study of these space component vendors and report back to the congressional intelligence committees.

Executive Summary

As requested by the House Appropriations Committee's Subcommittee for Defense, the National Reconnaissance Office (NRO) has completed a study on second and third-tier space supplier health, and submits findings in the following report. Comparable challenges that affect first-tier vendors more drastically affect smaller second and third-tier vendors. Many of these smaller vendors have an insufficiently diverse business to easily accommodate changes in schedule, funding, or requirements for unique, low-production items. These challenges have significantly reduced the domestic supplier base. The limited supplier base may compromise long-term availability of some critical components and can negatively affect current program schedules. Current technology availability risks and impacts are described as are specific examples.

Current resources and specific authorities have been considered in the space industrial base issue. Mitigating factors exist and are described supporting critical supply chain issues that threaten to have a significant negative impact on programs or space agencies. The current indirect process does not provide the National Security Space (NSS) community the necessary rigor for identifying and addressing critical and at-risk technologies. The NSS requires a much more efficient process to quickly detect problems and identify solutions in critical situations that will positively impact the current space industrial and supplier base (ISB).

Space Industrial Base Study

A fragile space ISB is a risk to U.S. space superiority. In certain cases, the U.S. government market, by itself, does not offer a sustainable business case for many second and third tier vendors. As a result, these vendors may not provide the government with stable technology availability throughout mission life. In many cases, market instability has reduced these vendors through either consolidation or elimination. While statutes are in place requiring U.S. government organizations to conduct assessments on industrial base health, procedures are inadequate for conducting them and producing solutions. The NSS Community needs effective processes to address certain technological risks, and a coordinated effort to improve critical space ISB issues.

Government space missions differ significantly from commercial space activities because of unique mission capabilities and a typically longer design life. Since many second and third-tier vendors are responsible for highly-specialized components, low-volume government satellites do not provide sufficient market stability, especially when government acquisition plans fluctuate from year to year. This results in a suboptimal return on any government investment because there is limited competition. If the government or first tier vendors do not take direct action, new suppliers generally do not enter the market and compete and existing suppliers have little incentive to dedicate resources to develop and offer a more competitive product. A recent NRO study also revealed certain critical suppliers exist only on revenue received from government programs. Furthermore, there are examples where components from a single supplier may be unique to a single program.

Currently, a single program office or agency tackles these problems, which may be larger than their scope. In some cases, selective and careful U.S. government intervention is required with ad hoc partnerships loosely created among related agencies. Another process also exists through the Defense Production Act (DPA, summarized in the Appendix). The NRO may send convert and send funding for DPA purposes to a collaborative "pool" for execution through the Office of the Secretary of Defense. Both processes are lengthy (18 months to three years) to address crisis situations and there is no window into vendor health to gain awareness early. Both processes require high level approval authorities for relatively low dollar amounts and involve numerous competing stakeholders. They also lack flexibility especially in funding type (non-expiring, multi-year, multi-purpose) to accommodate special circumstances. When current mitigation methods fail, critical suppliers may

unexpectedly vanish when prime contractors or their subcontractors require a product. Space programs may have adverse cost, schedule, and performance impacts because they must reconstitute sources or find alternative suppliers before completion. In either case, program offices and contractors consume valuable resources to choreograph vendor deliveries, implement work-arounds, or re-design hardware.

The Teflon-30 case embodies many current process problems in the space ISB. Teflon-30 is used as a coating on electrodes in nickel hydrogen batteries. It is manufactured semiannually from a single industrial chemical production facility in the U.S. that is principally designed to meet large commercial demands on a 24/7 operational schedule. Government needs are very small in comparison with commercial needs, which cause interruptions in facility operations. Since all space programs use nickel hydrogen batteries, five U.S. government organizations pursued an equitable production cost share on a \$900,000 contract. Each organization was required to allocate funds on a proportionate and annual basis. The process took three years to negotiate with the company, acquire funds, calculate equitable amounts, and attain top-level agency signatures. Government agreements were captured in a five-party memorandum of agreement and every case thereafter would require similar efforts. Additionally, qualification efforts involving replacement materials for space qualified batteries require 10 years life testing before authorized use by mainstream programs. Similarly, other space technologies can require at least a two-year process. Situations similar to this are expected in the future and a more efficient process would help significantly. Ideally, an enterprise-wide solution, with cooperation to share resources and information would be optimal.

In an effort to make the most of current methods, the NRO engaged with its NSS partners under Space Industrial Base Council oversight to establish a program for addressing shortcomings in the space ISB. NSS acquisition program offices were surveyed to identify problems and a critical technologies list was created. Although a positive first step, the problem scope is too large, and the current processes have not enabled effective resolution. Numerous challenges in U.S. government supplier parts, materials, services, and capabilities make it difficult to address the larger systemic problems in the entire space or defense industry. Reasonably attainable and timely solutions would focus on critical supply chain cases that couple into a more organic and direct resolution process for NRO use. Improved situational awareness and more user-friendly mitigation methods would help at-risk programs and improve the current overall space ISB situation.

Appendix: Defense Production Act Summary

DPA Title III authorizes the federal government to provide appropriate incentives to develop, maintain, refurbish, and expand the domestic productive capacities for critical components, critical technology items, and industrial resources essential to U.S. National Security Strategy execution.

At the core are authorities with legal flexibility to transact purchases, make purchase commitments, lease production equipment, develop substitutes, and process loans or loan guarantees. To insure flexibility, funds can be transformed from single-purpose/two-year research and development funds, into non-expiring/recoupable and multi-color funds.

In order to establish the business case to pursue these remedies, the authorities allow certain sensitive information be collected that is related to industrial partner strategic planning.

DPA Title III is recognized as statutory authority for addressing industrial base/technology transition issues, not as a funding source.