

# Tools for a Smarter Acquisition Strategy

## Introducing "SSPIM" —Single Source Pricing Investment Model

BRIAN GEARY • JANICE GRAHAM • RALPH GROEMPING •  
NEIL O'BRIEN • LAMAR WILLIS

The long-awaited release of the Department of Defense Transformation Planning Guidance (TPG) was merely the next step in a long series of documents and studies to depict DoD's desperate need for a more thoughtful and analytically based acquisition investment strategy.

According to the April 2003 TPG, "a priority element of the Department's corporate transformation strategy is reform of the acquisition process." Specifically, the TPG's stated goals are to reduce acquisition cycle time; align acquisition with a new capabilities-based resource allocation process; pursue transformational business and planning practices, such as adaptive (vice deliberate) planning; and develop a transformed analytic capability that can identify and assess risks for strategic planning.

While there remains a long and bureaucratically painful road ahead before any of these worthy goals can be achieved, the Department of the Navy (DoN) has recently begun to implement some of the difficult steps toward a more analytically based acquisition investment strategy. The Navy's Single Source Pricing Investment Model (SSPIM)—formerly known as RADSS, Resource Allocation Decision Support System—is a hopeful step toward achieving Defense Secretary Donald H. Rumsfeld's goal of transforming the defense acquisition process. Moreover, the full po-



A starboard view of the guided missile destroyer *USS Arleigh Burke* (DDG 51).  
DoD photo

tential of this tool to help DoN realize other goals listed in the TPG is only now being conceptualized.

The question SSPIM was designed to answer is not a trivial one. Simply stated: How can one determine the most efficient economic procurement profile across any portfolio of acquisition programs? A proof-of-concept study was initiated in 2000 by the Assistant Secretary of the Navy for Research, Development and Acquisition (ASN [RD&A]) to analyze the economic concept of Economic Order Quantity (EOQ) and its use within DoN's acquisition process. The study confirmed the hypothesis that significant savings and better decision making could be attained by using the EOQ concept. Later, SSPIM was developed to systematically determine the most economically efficient acquisition profile under existing constraints.

### What is SSPIM?

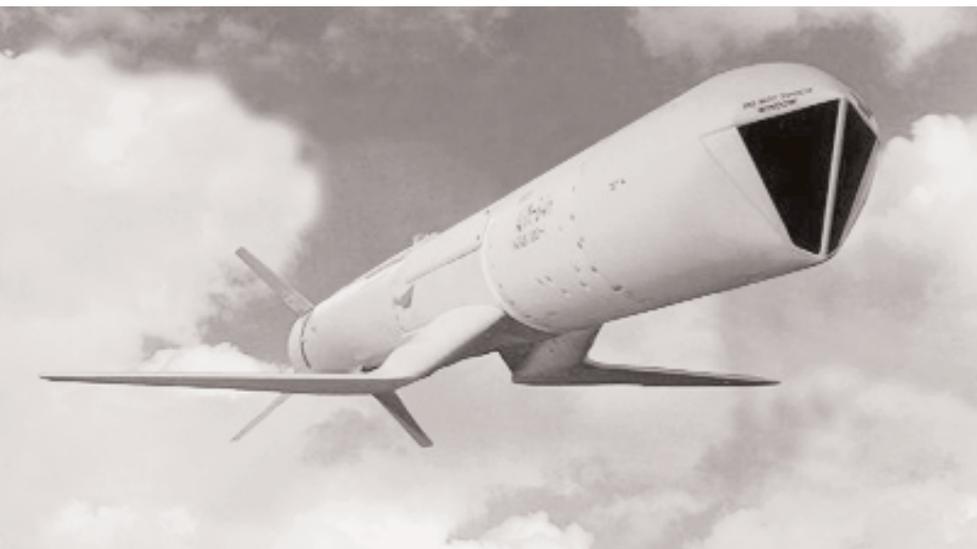
In essence, price optimization is discovered by assessing the relationship between cost and quantity. For example, how does unit cost change as procured quantities change? SSPIM analysis provides what is called an "EOQ Factor," which is a measure of a program's economic "elasticity." Programs that are considered "elastic" have a relatively large change in unit cost per change in quantity. "Inelastic" programs behave conversely, so that a change in quantity results in a relatively small change in unit cost. So when decision makers take into account a program's EOQ Factor and thereby discover the program's economic efficiency range, buy rates can be adjusted accordingly to maximize the program's cost effectiveness. In essence, the EOQ analysis produces data that identify procurement cost impacts over a range of production

*Geary, Graham, Groemping, O'Brien, and Willis are members of the Strategic Planning Group, Information Spectrum, Inc., an Anteon Company, Arlington, Va.*



The F/A-18E/F Super Hornet prepares to land on the deck of the *USS Harry S. Truman* (CVN 75). Because the Super Hornet is a carrier-based aircraft, it is equipped with a tailhook that will catch one of the four steel cables stretched across the deck, bringing the plane to a complete stop in about 320 feet.

Photo courtesy Boeing Media



SLAM-ER—Standoff Land Attack Missiles-Expanded Response

Photo courtesy Boeing Media

levels, enabling decision makers to comprehend the economic implications of a variety of alternative procurement options.

During the two years that followed the proof-of-concept study, SSPIM was developed into an operational capability and is now a DoN-standardized, Web-based decision support tool for the acquisition community. Resource sponsors within the Navy staff use SSPIM to

help structure their programs and to analyze alternatives.

Fundamentally, SSPIM creates an acquisition economic database that functions as a single source for current, standardized pricing information, thereby obviating the need to search elsewhere for cost information or to conduct redundant data calls. Once the data are compiled, users of the database are able to conduct numerous analytical functions, such as

assessing the cost of deferring acquisitions, comparing alternative investment or divestment strategies, and determining the cost of alternative programming decisions.

Programs of a similar nature, such as weapons programs, can be aggregated and analyzed as portfolios to find the

---

Fundamentally, SSPIM creates an acquisition economic database that functions as a single source for current, standardized pricing information, thereby obviating the need to search elsewhere for cost information or to conduct redundant data calls.

---

most economically efficient mix of all program buy rates. And ultimately, *all* acquisition programs can be aggregated in order to determine the most economically efficient acquisition profile for the current year, for the Future Years Defense Plan (FYDP), or for some other

## Ask SSPIM

The following are typical questions SSPIM can be used to answer:

- How much can I save or lose by changing the procurement profile?
- By changing procurement rates, how much will the unit cost change?
- What effect does buying more in the current year have on the unit cost in future years?
- How much can I save if I cut the program to its minimum sustaining rate?
- Is a given procurement profile more or less efficient than the program of record?
- Given annual budget constraints, what is the most efficient procurement profile?
- How much can I save across all programs by changing the annual quantities bought in each year while maintaining the same program total buy?
- If I increase the total budget, how should I spend that money in order to maximize the amount of program I buy?
- Which programs can I reduce to their minimum sustaining rate to find significant savings elsewhere?

predetermined period. Analytical functions are being added continually as users identify additional requirements.

Already the impact of this tool on the Navy's acquisition profile and budget has been considerable. Three Naval programs—SLAM-ER, DDG-51 and the F/A-18 E/F—serve as excellent examples of what resource savings are possible when a more analytically based tool is used to frame the acquisition investment strategy.

### **SLAM-ER**

SSPIM analysis was used to demonstrate how the Navy could accelerate the buy of 41 SLAM-ER precision-guided munitions in fiscal 2002 and save \$20 million in procurement costs over the life of the program. The chief of Naval Operations (CNO) then used the SSPIM analysis in testimony before Congress to illustrate the Navy's budget priorities, and thereby obtained congressional approval to procure the extra 41 SLAM-ER missiles.

### **DDG-51**

During the fiscal 2002 budget process, SSPIM was used to determine the most economically efficient acquisition decision across all programs, given a certain budget increase. Based on the EOQ Factor, it was determined that the greatest economic benefit could be achieved if the Navy were to use these resources to acquire one additional DDG-51 class destroyer. In other words, the economic efficiency of procuring an additional DDG-51 was greater than it would be if these resources were used for other program acquisitions. Armed with these SSPIM data, the Navy was able to secure approval through Congress to acquire the additional destroyer in fiscal 2002.

### **F/A-18 E/F**

In one of the most explicit examples of how this tool can enable more cost-effective decision making, SSPIM analysis was used to illuminate the unit price implications of adjusting the procurement rate for the F/A-18 E/F aircraft. In the case of the F/A-18 E/F, analysts believed that if production rates were reduced from 45 to 42, cost savings would be commensurate with the purchase

price of the three aircraft. However, the SSPIM analysis indicated that the cost savings would, in fact, be only two-thirds of the purchase price of the three aircraft. In essence, the anticipated savings from a decision to reduce the rate of production *would be partially offset as the result of a corresponding increase in unit price*, and the Navy would be forfeiting three aircraft while saving only the purchase cost of two.

These standout examples of the benefits of the SSPIM are buttressed by the use of the tool during the difficult task of redefining the Navy's acquisition strategy following the events of 9/11. When a plane smashed into the Pentagon that day, many of the offices that were responsible for the Navy's budgeting data were destroyed. After 9/11, the president immediately passed a directive for the military services to assess their ability to respond to the now visible, unconventional threat of terrorism against the U.S. homeland and interests abroad. To be included was an assessment of current acquisition programs and their capabilities to meet this threat.

SSPIM re-created the necessary budgeting information and quickly provided Navy leadership the ability to make informed acquisition decisions and to prepare the required supplemental budget. Afterwards, the director of Programming, Planning, and Development for the CNO cited the SSPIM analysis as "critical" to determining the Navy's post-9/11 acquisition strategy for precision weapons.

On the heels of this effort, the CNO used SSPIM analysis in several ways. During the Navy's divestiture proceedings, the process was part of the hunt to find savings across the FYDP. In a number of major programs, SSPIM analysis revealed flyaway unit cost growth and hidden costs in component programs. Recently, the deputy chief of Naval Operations (Naval Warfare) used SSPIM to alter the procurement profile of the H-1, MH-60R, MH-60S, and V-22 aircraft to determine the best overall procurement profile for the PR-05 budget build. To enhance the budgeting process, the Navy is currently working to integrate

the SSPIM tool into the Programming and Budgeting Information System (PBIS). Clearly, the potential of this tool is eye-opening.

### Adding Transparency to Navy Programs

Yet historically, eye-opening tools that add transparency to the defense acquisition process have not all been welcomed! Indeed, in some instances—particularly during the first year of implementation—this has been the case with SSPIM. As a result of congressional directives during the 1980s, Navy program offices were redesigned with the intended effect of separation, accountability, and reassertion of civilian control. As expected, some program offices were hesitant and even unable to provide accurate and complete cost data so crucial to producing effective SSPIM analysis.

The ability to obtain reliable and timely cost data from program managers was an initial hurdle in implementing the SSPIM's capability into the Navy. Some of the program data submitted for use in the SSPIM were not consistently standardized across programs and not sufficiently detailed for the model to produce reliable information upon which critical acquisition decisions could be based. Up to this point, some program offices—particularly the smaller offices—had not routinely generated such information.

Now, with each new data call, the ability to provide accurate, consistent, and timely cost data for inclusion in SSPIM becomes less taxing as program offices grow accustomed to accumulating and providing such information.

Clearly, the Navy's adoption of the SSPIM tool has added transparency to the service's budgetary process. The degree of transparency is predetermined and controlled within SSPIM to ensure the integrity of the programming and budgetary process. It has accomplished this by bringing data from multiple program offices to a consistent standard and granularity in order to make comparisons and trade-offs feasible.

Now program offices provide data sets that are subjected to multiple automated validation rules embedded in SSPIM. This capability flags internal inconsistencies in a program's data and provides program offices with the opportunity to clarify their data. As a result, a wealth of knowledge becomes embedded in the procurement system so that it can be more purposefully deployed to improve programming decisions.

### Expanding SSPIM's Capabilities

Several areas exist where the SSPIM capability could readily be expanded (in some areas, expansion is already under way), thereby causing the tool to evolve into an even more valuable decision-making aid. For example, the SSPIM capability could be expanded to provide a single measure of overall acquisition efficiency across all programs. This expanded capability would provide several additional benefits. Real-time impact analysis of any changes made to the acquisition profile would be available to decision makers. Similarly, decision makers would be able to quantify potential efficiencies achievable through acquisition profile restructuring. Expanding this capability would enable Navy leadership to quantify the long-term cost to programs whenever decisions are made in the interest of short-term FYDP expediency. Finally, it would provide Congress with visibility of the Navy's efforts to increase acquisition efficiency.

Another potential development option for the SSPIM is to factor into the analysis the primary existing risk factors within acquisition programs that potentially could lead to significant cost growth. Once the risk factors are identified, an associated risk estimate could be quantified and then incorporated into the program's overall cost estimate. Having this capability would enable decision makers to forecast risk and more realistically estimate a program's *likely true cost*, thereby structuring a more sustainable acquisition profile.

One of the most needed and potentially useful ways in which to expand the capability of the SSPIM tool would be to

enable the model to account for a program's total ownership cost. Incorporating into the SSPIM analysis such items as the following would provide decision makers the ability to assess a program's true life-cycle cost: operations and support costs; research, development, test, and evaluation costs; and disposal costs. With this capability, decision makers would be aware of the full implications of any schedule change to a program. Perhaps even more important in a bud-

---

The question SSPIM is designed to answer is not a trivial one. Simply stated: How can program managers determine the most efficient economic procurement profile across any portfolio of acquisition programs?

---

get era where divestiture decisions are becoming increasingly common, this added capability would provide decision makers with data on the costs of maintaining legacy systems vs. the costs of accelerating new programs.

### What Can SSPIM Do for the Operator?

The economic benefits of the SSPIM tool are substantial and beneficial in their

own right. Yet, as has been noted by an increasing number of the Navy's operational staff, lacking from the model is the ability to conduct any type of *integrated economic and operational* program assessment. Indeed, many individuals familiar with the SSPIM suggested that the most useful application of the tool would be the ability to incorporate capabilities assessments for individual programs. In the current environment, no precise approach links and assesses operational requirements, capabilities, and resources.

The difficulty has been the ability to relate the derived capability assessment to a budget in such a way as to enable a coherent basis for trade-off analysis

among competing programs within a defined capability universe. Adding to the equation a parameter that would factor in a program's marginal utility as it relates to operational requirements and capabilities would account not only for the program's economic attributes, but also its importance relative to what are known as Mission Capability Packages (MCPs). MCPs outline the operational capabilities and requirements needed to fulfill all assigned missions in accordance with the warfighting requirements of *Naval Power 21*.

Now all programs currently being procured could be aligned and prioritized within an MCP. By analyzing the mar-

ginal contribution of individual programs to MCPs, relative priorities could be determined. It would thus be possible for decision makers to rank desired programs within each MCP based on operational as well as economic factors.

Through the use of this methodology, a procurement strategy could be developed over the FYDP consistent with requirements, capabilities, and economic constraints. This capability would be *invaluable* during the budget build process and the development of the Integrated Strategic Capabilities Plan. In essence, the Navy would have a decision-making tool to identify areas of strategic risk with respect to both economic and operational capability shortfalls.

## Goodbye *Program Manager*— Hello *Defense AT&L*!

**I**n 2004, *Program Manager* will morph into *Defense AT&L*, a new publication that reflects the broader audience we serve and the expanded scope of the articles we publish in the area of acquisition, technology and logistics.

Your subscription won't be affected.

If you're already receiving *PM*, you'll automatically receive *Defense AT&L*. If you're reading a borrowed copy of *PM*, now's the time to sign up for your own subscription to be sure of getting the first issue of *Defense AT&L*. Information on how to subscribe is on page 1.

**NEW NAME NEW COVER**  
**SAME CUTTING-EDGE ARTICLES**



**COMING IN 2004**

Can We Grow SSPIM to its Full Potential?

Over the past two years, with the leadership and support of the ASN(RD&A) and the Navy staff, the SSPIM tool has developed into the Navy's definitive database for performing economic trade-off analysis and cost optimization. Even so, this decision-making tool's full potential to help the Navy acquire the best possible technology at the optimum cost to meet its required operational capabilities has not been reached.

The development costs for the SSPIM tool have been recouped many times over in the acquisition resources saved as a result of SSPIM analysis. The minimal development costs that would be incurred to expand the SSPIM tool and enable the capabilities described in this article would also be recouped easily. And fundamentally, the Navy—indeed the Department of Defense, or any other organizations that have a comparable procurement process—would benefit enormously from a tool that enabled the *most informed acquisition decision making possible*. Development of the enhanced SSPIM tool could be a major step forward in Rumsfeld's mandate to transform the defense acquisition process.

**Editor's Note:** The authors welcome questions and comments on this article. Contact Graham at [grahjm@ispec.com](mailto:grahjm@ispec.com).