

SOURCING STRATEGY BEST PRACTICES - BRINGING SPEND ANALYSIS TO THE DOD

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INTRODUCTION

As demands for government oversight and accountability continue to grow, DoD managers must develop capabilities for improved program controls and acquisition strategies. First developed and implemented by the commercial sector in the 1990's, spend analysis is a proven effective tool that offers program managers with the business intelligence vital to improving operating efficiencies and reducing costs.

What is spend analysis? Simply put, it is process of compiling an organization's procurement data to glean insights pertaining to an organization's spending activities, segmented across commodities, products, services and suppliers. These insights, in turn, can drive and defend an organization's strategies for cost control, acquisition and policy compliance.

As a foundation, this paper will outline a basic spend analysis framework and provide evidence for the tool's benefits. A detailed case study will provide insight to where and how spend analysis can be employed effectively for a DoD program.

SPEND ANALYSIS FRAMEWORK

Realizing the full potential of spend analysis depends on establishing a sound framework. Contrary to the impression conveyed by its name, spend analysis includes more than just cost analysis. Rather, it is a series of processes that should be embedded into an organization's strategies for cost control, risk assessment and policy compliance. These strategies will establish the spend analysis scope, while the spend analysis results will inform the strategies. Spend analysis is intended to be performed iteratively and regularly as a learning mechanism to deepen and hone insights of prior cycles.

Using commercial best practices, Booz Allen Hamilton established a spend analysis framework, depicted in Figure 1, that highlights the iterative interrelation of five major component steps. The details for these steps are articulated below.

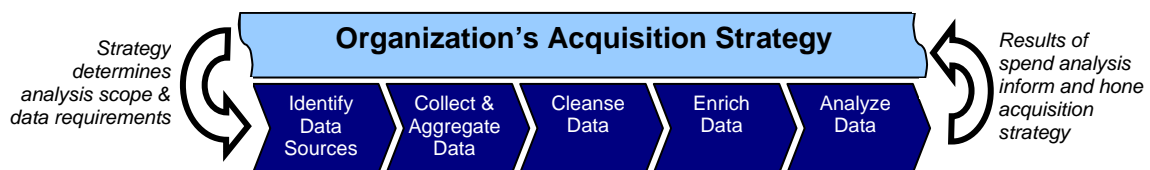


Figure 1: Spend Analysis Framework

Step 1: Identify Data Sources. The objective of this step is to identify all potential sources of data. Those organizations seeking to implement a spend analysis for the first time likely do so because they perceive a need to streamline procurement and contracting to take advantage of volume discounts and ensure regulatory compliance is met. This implies that, at the outset, buyers could be

fragmented and spread throughout the enterprise and conduct their business with little oversight or coordination. In such situations, there likely will be a high degree of inconsistency in data capture and measurement across organizations.

Achieving the benefits promised by spend analysis with such a decentralized purchasing structure likely requires organizational change. Organizations may decide to implement an ERP system as a remedy, but an IT system will not inherently ensure data integrity, consistency and comprehensiveness. Ultimately, management must institute changes to the organization with the goal of standardizing procurement data capture, terminology, and measurement practices. Training is essential to communicate these standards as well as to build an appreciation of everyone's role in the process.

In-depth discussion of business processing re-engineering is beyond the scope of this paper. However, the cost estimator needs to recognize their vital role as the ultimate customer of the data in an organization's strategic initiatives and/or systems implementations, which include spend analysis. As an end user of data, the cost estimator is an important arbiter of data requirements as well as an advocate for data integrity, consistency and comprehensiveness. Accordingly, the cost estimator should be included as a stakeholder in integrated project teams tasked with implementing associated IT or organizational initiatives.

When identifying data sources, one should start with the most obvious sources: Accounts Payable, General Ledger, ERP, Contracts and purchasing systems. Interviewing those responsible for purchasing may identify additional sources. For data external to the organization, points of contact need to be identified and interviewed.

Step 2: Collect and Aggregate Data. Once data sources have been identified, data collection efforts can be planned and implemented. This can take the form of automated queries on a central data repository or more manual efforts such as mailing data collection packages to designated POCs throughout the organization. Senior-level advocacy and maintaining persistent contacts with external POCs is crucial for ensuring acceptable levels of compliance for collecting data outside of the organization.

The response rate provides an important measure of the success of a data collection efforts. This rate can either represent the percentage of all targeted organizations submitting populated data templates or the percentage of total estimated spending dollars accounted for in the submitted data. Estimates of total spending could be based on totals provided in prior submissions, which ideally can be vector checked or augmented by researching relevant market or industry reports and applying market estimating analytics.

Conducting more up-front planning with the data collection package will mean less work required to correct issues with erroneous data or fill holes in data sets in ensuing steps.

Step 3: Cleanse Data. Once spend data has been obtained from disparate sources and aggregated into the cost estimator's database or spreadsheet, the data will need to be closely examined to identify and resolve anomalies. Examples include spend data from a time period other than the one pertinent to the analysis, duplicate submissions, and inconsistency in measurement or categorization (i.e., obligations provided when expenditures were specified.) Automated tools can be employed to help identify missing or "dirty data" where possible. Follow up with subject matter experts or those submitting data should be conducted to help resolve.

Step 4: Enrich Data. In this step, data suffering from low contextual completeness should be addressed. Where appropriate, employ subject matter expertise or analyze descriptive statistics to identify outliers or trends that may offer insightful estimates for filling gaps. It is important to understand that data will never be 100% complete, and the analyst should never "force" incorrect or inaccurate data. In particular, circular analysis needs to be avoided where the mechanism for estimation becomes the conclusion of analysis. For example, if missing data points are interpolated, these points cannot be part of a statistical analysis, such as calculating standard deviation. The analyst should keep careful track of enriched data and perhaps only use this data for certain subsets of analysis and cross correlation.

Step 5: Analyze Data. At this point, the dataset is ready for analysis of spending across various dimensions, cost comparisons and usage or price trends. Remember, the scope of the analysis will be established by the overarching strategy, but other trends that "jump out" can also be investigated.

SPEND ANALYSIS IN PRACTICE

Spend analysis was developed and implemented initially in the private sector in the 1990's, offering clearly successful results. According to Aberdeen's 2007 Spend Analysis Report, the average savings from sourcing efforts after spend analysis is 11.7% for overall spending. Examples of three types of primary benefits are depicted in Table 1 and specific company experiences follow.

Identify Cost Savings Opportunities	Identify Potential Risks	Support Regulatory Compliance
<ul style="list-style-type: none"> ▶ Opportunities to aggregate demand across organization ▶ Costs associated with maintaining too many supplier relationships ▶ Potential for consolidation of contracts ▶ High-cost procurements relative to industry benchmarks ▶ Opportunities for strategic contracting (e.g., multiyear contracting) 	<ul style="list-style-type: none"> ▶ Limited competition among suppliers ▶ Low/variable demand ▶ No contract in place ▶ Maverick spending ▶ Poor inventory management ▶ Budget or policy non-compliance 	<ul style="list-style-type: none"> ▶ Auditable record of expenditures ▶ Small Business Administration interests ▶ Budgetary and planning assistance

Table 1: Major Spend Analysis Benefits Categories

Example (Cost Savings): Hasbro Inc. implemented a spend analysis for their organization as part of their strategic sourcing initiative. From this spend analysis, the firm learned that temporary personnel for seven locations were provided by seventeen different suppliers. By consolidating to a single supplier of temporary personnel, Hasbro was able to negotiate an overhead rate 45% lower than previously obtained and reduced temporary labor spending from \$5M to \$4.3M.

Example (Risk Assessment): British Airways PLC employed spend analysis to identify savings opportunities with their preferred suppliers. The spend analysis identified maverick spending which was reduced by applying controls to ensure that orders for specific goods were sent to the proper supplier and used pre-negotiated prices.

Example (Regulatory Compliance/Planning): Chevron Corporation employed a COTS spend management tool to identify and correct deficiencies in its financial data management. Considering the tool a success, Chevron further developed automated custom solutions for managerial reporting that substantiated compliance with SOX requirements.

Example (GAO and DoD Response): Beginning in 2002, GAO began publishing reports advocating implementation of spend analysis among federal agencies to claim many of the same benefits realized in the private sector. Reports documented the success of firms to control costs and generate savings when implementing strategic approaches to spending. The reports argued that federal agencies, and specifically DoD, could expect significant benefits from following the lead of these firms. A GAO report from 2004 found that some agencies started making good progress, obtaining actionable insights and improving their spending for goods and services.

Shortly thereafter, the federal government began directing agencies to employ strategic sourcing initiatives and spend analysis for their program governance. In May, 2005, the Office of Management and Budget (OMB) released a memo outlining policy for strategic sourcing efforts, including the role of spend analysis. Congress also began to direct agencies, especially within DoD, to perform complete spend analyses of commercial procurements for special interest programs. Recent revisions to DoD Instruction 5000.2 include specific language directing acquiring programs to conduct spend analyses.

CASE STUDY: COMMERCIAL SATCOM SPEND ANALYSIS

Background. In recent years, DoD increasingly has relied on commercial satellite communications (COMSATCOM) services to satisfy space-based communications requirements. While the DoD had decentralized appropriations for information services, in part to suppress user appetite and to develop more value-conscious users, the Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6250.01C designated the Defense Information Systems Agency (DISA) as DoD's only authorized provider of COMSATCOM services. Initial results included disgruntled users that believed DISA's acquisition mechanism was flawed and costly, in part due to anecdotal industry sales efforts. Since 2001, DISA's acquisition mechanism for fixed satellite services (FSS)¹ has been its Defense Information Systems Network (DISN) Satellite Transmission Services – Global (DSTS-G) contract vehicle. While PMO SATCOM also maintains a contract vehicle for Mobile Satellite Communications (MSS)², this case study will focus on FSS.

As a result of this political fall out, Congress directed a spend analysis of DoD acquisition of COMSATCOM services in Section 818 of the National Defense Authorization Act of FY 2006 (NDAA 2006). The PMO SATCOM retained Booz Allen Hamilton to support the development and implementation of a spend

¹ Fixed Satellite Services refer to transponded bandwidth services offered on geostationary communications satellites television and radio broadcasts as well as voice and data communications. They operate within the following bands of the electromagnetic spectrum: C, Ku, Ka and X.

² Mobile Satellite Services typically operate within the S and L bands of electromagnetic spectrum.

analysis framework. DSTS-G task order data, both financial and technical, were compiled, as were data from other DoD COMSATCOM vehicles and market data from the satellite industry. Data was cleansed and normalized to enable valid comparisons across vehicles. The spend analysis report to Congress (the “818 report”) provided statistical evidence to refute anecdotal claims that rogue acquisitions provided the lowest cost alternative. Rather, the large scale of purchases and competitive construct of DSTS-G saved far more money than the inherent fees that systems integrators added to DoD’s bandwidth purchases. As a result, DSTS-G secured pricing far below market averages and other DoD COMSATCOM contracts (see Figure 2.)

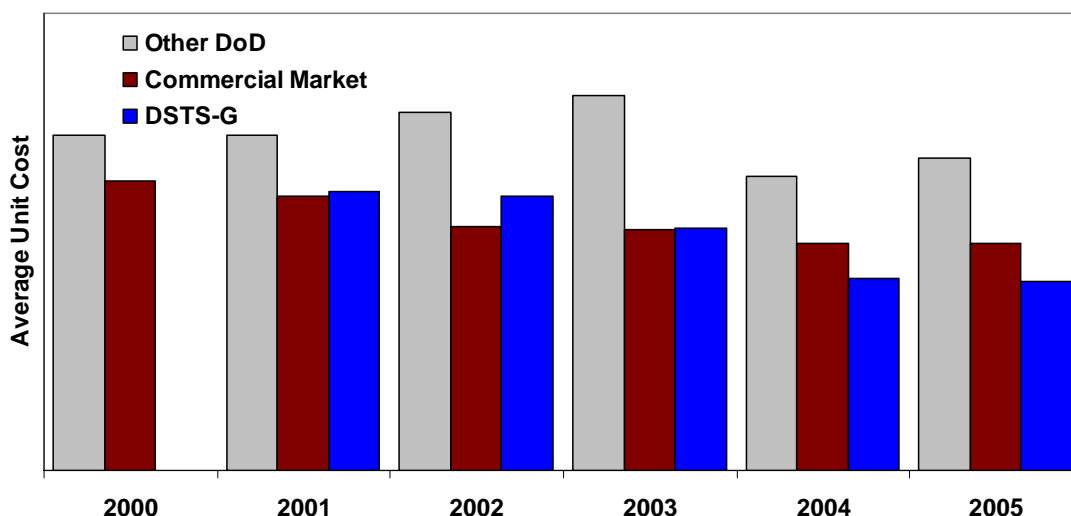


Figure 2: Comparison of Average Transponder Equivalent (Unit) Costs

In addition, the analysis proved that DISA achieved greater scale economies as expenditures increased (Figure 3), refuting GAO’s concern that DISA did not benefit from the massive scale of DoD COMSATCOM. More specifically, at low usage, DSTS-G prices tracked market averages, but as usage increased, DSTS-G prices correspondingly decreased at a rate faster than market averages. Since the 818 report, PMO has conducted spend analyses on an annual basis as mandated by CJCSI 6250.01C. The findings of these annual reports have been consistent with the conclusions of the 818 report.

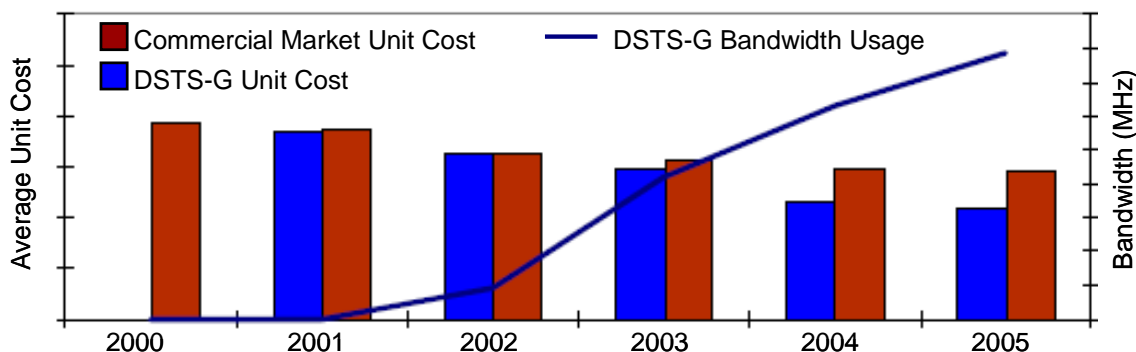


Figure 3: Average DSTS-G Unit Cost Performance and Usage Growth

The ensuing discussion gives a high level detail of the framework employed and some of the challenges encountered for the 818 Report.

Preparation of the Data-Collection Template. Based on commercial best practices, language in Section 818 of the NDAA 2006, and Booz Allen's comprehensive understanding of COMSATCOM requirements, a data-collection template was created in Excel. A broad set of data elements were established recognizing technical, microeconomic, and macroeconomic pricing drivers. Administrative data elements were also included to provide full traceability. Recognizing the importance of obtaining accurate and comprehensive data with a single data call, the package included instructions and sample data entries.

Identification of Potential Data Sources. Booz Allen recognized that the decentralization of COMSATCOM appropriations would lead to fragmented acquisitions beyond those leveraging DISA's purchasing authority. As a result, DISA needed a broadly visible mechanism to reach the many users across DoD. With the scope of the spend analysis limited to DoD, the DD Form 350 (Individual Contracting Action Report) database provided a starting point for establishing a set of potential data sources. DoD requires a DD Form 350 be submitted for all contracting actions that obligate or deobligate \$25,000 or more. DD Form 350 requires users to provide information such as contracting office, contract number, obligated/deobligated dollars, North American Industry Classification System (NAICS) codes, and descriptions of the procured goods or services.

Issuance of Data-Collection Tasker. To leverage an authority over every prospective DoD COMSATCOM user, the Assistant Secretary of Defense for Networks and Information Integration (ASD/NII) sent the data-collection tasker directly to the Secretaries of Military Departments, Directors of Agencies, and Commanders of Combatant Commands (COCOMs). In addition, the tasker was sent directly to 237 contracting offices identified via the DD 350 queries. This approach ensured contact with the appropriate parties and resulted with the maximum response to the data-collection efforts across the entire department.

Collection of Responses. Respondents provided populated data-collection templates via e-mailed to a DISA point of contact identified in the instructions. The point of contact subsequently stored all data centrally using a web-based DISA collaborative tool. To ensure a substantive response rate, Booz Allen tracked all response receipts closely to facilitate the next phase of the effort. Responses were continually submitted past the identified deadline and were accepted up to the stage at which the data set had to be configuration controlled to conduct the analysis.

Cleanse and Enrich Data. Booz Allen dropped data submitted that fell outside the scope of the analysis, and then they validated the data to ensure accuracy

and completeness. Subject Matter Experts (SMEs) from Booz Allen and DISA identified obvious inaccurate or incomplete entries and corrected them where possible. Any responses still requiring clarification or additional data were resolved by directly contacting the parties responsible for the data in question, or else the data was dropped.

Conduct Analysis. All analyses conducted supported the high-level spend analysis activities prescribed by Section 818 of the NDAA 2006:

- Calculating costs by fiscal year, buying entity, and supplier
- Calculating quantities by fiscal year, buying entity, and supplier
- Identifying purchasing patterns

With 44 data elements collected for each contracting action between fiscal year 2000 and fiscal year 2005, billions of permutations of calculations were possible. To achieve a more manageable spend analysis, Booz Allen crafted a 'top down' analytic approach to focus on analyses most relevant to report objectives. First, Booz Allen devised a set of high impact hypotheses with DISA and identified permutations (segmentations and cross correlations) to validate or refute hypotheses. Additionally, Booz Allen segmented spend across several prominent dimensions and sub-segmented further as part of a discovery process to identify important nuclei of costs. After inspecting the results of the initial calculations, secondary calculations were defined as needed to segment and clarify trends, patterns, and anomalies in COMSATCOM expenditures.

Because billions of dollars were at stake, stakeholders anxiously awaited results of the 818 report. Because many of these stakeholders had opposing agendas, no conclusions would appease everyone. Regardless, the methodical approach and statistically sound analysis was irrefutable. Congress accepted DISA's conclusions, GAO found DISA's actions to be acceptable, and the results of 818 formed the basis for strategy within DISA and across the DoD COMSATCOM users. Soon thereafter, DoD made spend analysis a mandatory component for certain acquisition programs.