DEFENSE ARJ EXECUTIVE EDITOR

Welcome to the *Defense Acquisition Review Journal* (ARJ) Issue No. 49. Our first article in this issue is "Incentive Contracts: The Attributes That Matter Most in Driving Favorable Outcomes," by Robert L. Tremaine. This article summarizes the efforts of a DAU research team headed by the author, which was established to investigate and analyze the findings of the Government Accountability Office (GAO) regarding the use of incentives in Department of Defense (DoD) contracting. This is the second article from this research project to appear in the *ARJ*. The first article, which appeared in Issue No. 48, was a subordinate article by two members of the research team and focused on selected parts of the study. This article, which is more extensive and comprehensive, captures the entire findings from all 25 organizations participating in this Office of the Secretary of Defense-sponsored research. Incentive contracts have been in place for many years, and they represent only one of the many contractual tools the DoD has at its disposal to drive certain performance behaviors. The objective of this study was to determine what correlations exist between incentive-type contracts and expected performance outcomes.

The second article, "Maximizing Warfighter Capability Using Surveyed Necessity Measurement: Application to the USAF F-15C Fleet," by John M. Colombi, David R. Jacques, and Dennis D. Strouble, examines how upgrades and modifications to a legacy weapon system can logically be prioritized and implemented. Within the DoD, with changing missions to counter dynamic and asymmetric threats, the Services strive to maximize capability for joint warfighting. A good example is the F-15C program, for which there are a number of available capability upgrades that can markedly improve combat capability and reliability. However, the defense budget does not allow the F-15C program manager to acquire all potential upgrades for every aircraft. The purpose of this research study was to identify a methodology for determining which upgrades should be purchased for which aircraft in the fleet, by quantitatively using a capability proxy measure. In the attempt to comparatively measure capability, each upgrade's "necessity" for a given mission area was obtained by conducting a survey of over 250 experienced F-15C pilots. This "necessity" was

gauged relative to the F-15C's expected role in the Concept of Operations of Global Persistent Attack and Homeland Security. A linear programming model searched for the optimal configuration, which maximized capability of a weapon system—in this case the F-15C—constrained against an overall production budget authority. The solution to this problem is provided, as well as challenges to mathematical acquisition deciding-aiding.

In the third article, "Training Architecture Practices in Army Acquisition: An Approach to Training Software Architecture Practices in U.S. Army Acquisition," Stephen Blanchette and John Bergey examine the training concept of the Army Strategic Software Improvement Program (ASSIP) Software Architecture Initiative. Technology management skills in DoD are not keeping pace with the advanced systems acquired by DoD, especially as software becomes more prevalent in those systems. ASSIP seeks to dramatically improve the acquisition of software-intensive systems by building a level of technical expertise in modern software architecture practices within the acquisition community. The Software Engineering Institute has been working with the Army in a strategic partnership aimed at improving the ability to acquire software-intensive systems.

The fourth article is "The Application of Supply Network Optimization and Location Analysis to a DoD Repair Supply Chain," by William R. Killingsworth, David Berkowitz, John E. Burnett, and James T. Simpson. The authors discuss the responsibility of the military and its suppliers to provide an adequate supply of parts and materials to support warfighters throughout the world. Using an Army helicopter case study, this article reviews a process used by an Army global supply chain to make a location decision for a critical distribution center. Additionally, the authors demonstrate the applicability of network optimization techniques to a supply chain location analysis problem.

The fifth article, "Reforming How Navy Shipbuilding Contracts Adjust for Material-Cost Risk," is authored by Edward G. Keating, Robert Murphy, John F. Schank, and John Birkler. This article describes how the U.S. Navy structures fixed-price and fixed-price, incentive-fee shipbuilding contracts and how labor- and material-cost indexes can mitigate shipbuilder risk in either type of contract. The Navy frequently uses the Steel Vessel material-cost index, a Bureau of Labor Statistics-derived cost index based on the mix of materials in a typical commercial cargo ship constructed in the 1950s. The Steel Vessel Index has excessive weighting on iron and steel, thereby providing shipbuilders with a mismatch between their actual and the Index-assumed material cost structure. The authors recommend the Navy use a material-cost index with more up-to-date weightings. Moving toward a better index would also be an opportunity to explore a time-phased material-cost index, e.g., reflect the fact that shipbuilders typically buy keel steel early in production with on-board electronics procured much later in the construction process. The more accurately a material-cost index captures a shipbuilder's external material cost risk, the less the Navy should have to pay its shipbuilders.

The sixth article in this issue, "Do Team Goals Affect Team Focus and Performance? Research Study of DAU's Program Management Office Course (PMT-352B), is by Thomas Robert Edison. This article characterizes a study of work team per-

formance in organizations. The Department of Defense, along with many defense industry partners operating in today's complex and dynamic work environments, is becoming increasingly more dependent on *work teams* as a means of maximizing creativity and efficiency from its acquisition workforce. Work teams can be an important resource to defense/business leaders and can help optimize effectiveness of organizations resulting in greater program successes.

Dr. Paul Alfieri
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NOTE FROM THE MANAGING EDITOR

This note serves as a correction to the volume number for *Defense ARJ* edition 48. Instead of July 2008 Vol. 16 No. 2, the cover should read July 2008 Vol. 15 No. 2.