

Army Set to Introduce “CAT”

Cost As an Independent Variable (CAIV) Analysis Tool

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The Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA/ALT) Army Total Ownership Cost (ARTOC) Directorate designed, developed, and tested a beta-version of a Cost As an Independent Variable (CAIV) analysis tool. Dubbed CAT, for CAIV Analysis Tool, PM Teams may use CAT to perform CAIV analysis of their proposed products and product improvement initiatives. CAT is a Microsoft® Excel® tool that offers many advantages:

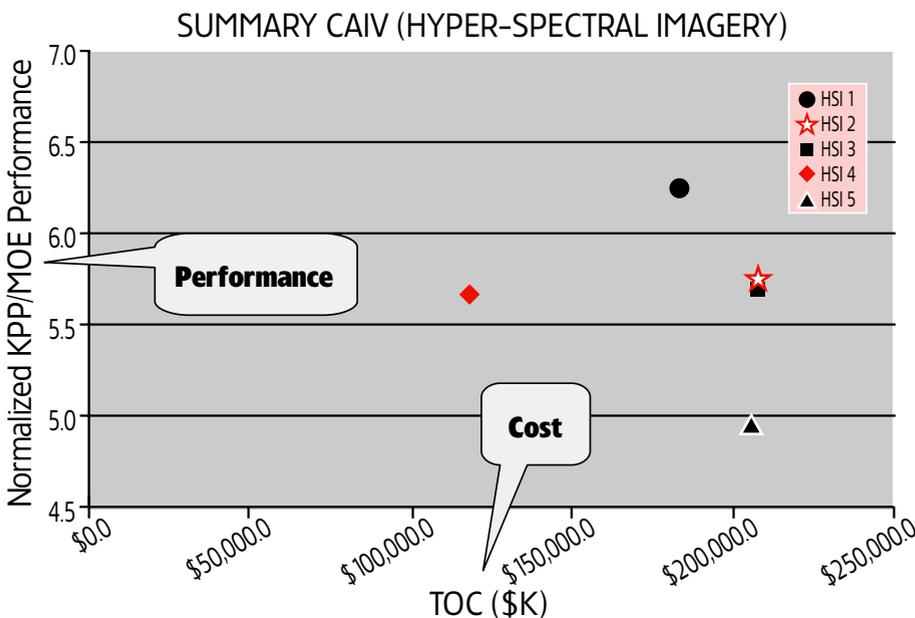
- Provides a point-and-click user interface to navigate through the data entry menus.
- Presents real-time CAIV Analysis in a graphical chart.

- Implements the latest version of DoDI 5000.2.
- Adheres to MIL-HNBK-881B Work Breakdown Structure (WBS).
- Allows users to view Total Ownership Costs (TOC) at various WBS levels.
- Summarizes TOC into apportionment categories with pie and bar charts.
- Interfaces with Tecelote’s Automated Cost Estimator Integrated Tool (ACEIT©) used by the Army’s Cost and Economic Analysis Center (CEAC).

CAT’s Start Menu, consisting of the following 14 steps, allows the Program Management (PM) Team to easily point-and-click through the data entry menus:

- Step 1 Enter the Point-of-Contact’s Information
- Step 2 Enter the Product’s Description
- Step 3 Enter the Start Year and Program Schedule
- Step 4 Enter the number of Major End Items (MEI) per Battalion
- Step 5 Enter the Battalion Fielding Plan
- Step 6 Enter the Battalion Disposal Plan
- Step 7 Enter the Procurement Plan
- Step 8 Enter the Number of and Cost for Personnel in a Battalion
- Step 9 Enter the Cost for Each Sub-System
- Step 10 Enter the Performance Parameters for Each Sub-System
- Step 11 Enter the Fuel Cost
- Step 12 View the CAIV (Cost As an Independent Variable) Charts
- Step 13 Select the Sub-Systems
- Step 14 View the Acquisition Phase and Fund Information

FIGURE 1. A CAIV Scatter Chart



A CAIV analysis, including a CAIV scatter chart in Step 12 (Figure 1), is immediately available to the PM Team after they fulfill the initial 11 process steps. After the Team selects the component or sub-system in Step 13, CAT allows the Team to view the planned expendi-

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tures by acquisition phase and by appropriation fund.

Provides Real-Time CAIV Analysis

Upon completing the 14 steps, the PM Team arrives at a CAIV and Fund analysis. CAT allows a PM to more easily select the best product based upon performance vs. TOC. Figure 1 provides an example of a CAIV scatter chart, showing real-time CAIV analysis.

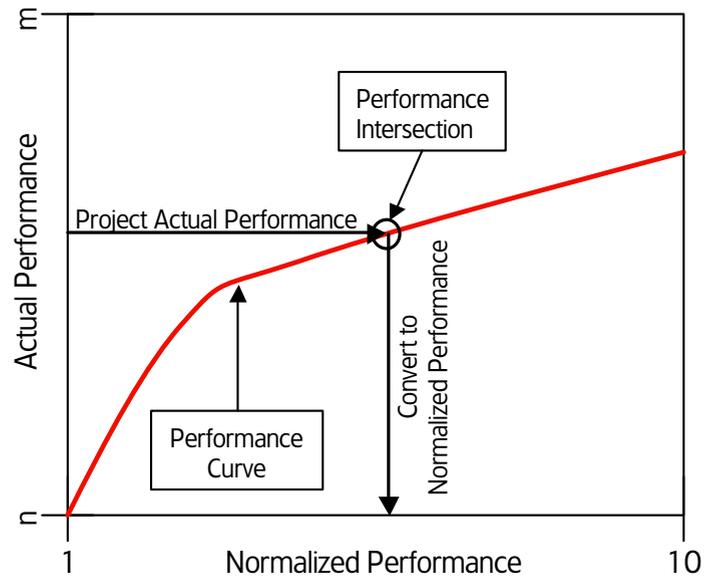
The CAIV scatter chart plots the normalized performance as a function of TOC. Using Figure 1, for example, users can easily determine that CAIV Hyper-Spectral Imagery (HSI) provides little additional performance and costs about \$175 million more than does HSI 3 over the life of the hyper-spectral component. This analysis is one of the tenets of CAIV—best performance/less TOC. How does CAT assist the Team in performing CAIV analysis? The following discussion provides a cursory description of CAT CAIV.

The PM Team must provide cost and performance estimates to generate the CAIV graphs. CAT allows the PM Team to enter a product's estimated cost for Research, Development, Test & Evaluation (RDT&E); Procurement; and Operations and Support (O&S), which includes Annual Integrated Logistics Support [ILS] and Training Costs.

After the Team provides the cost estimate, they enter the anticipated performance of the component with respect to the Key Performance Parameters (KPP), Measures Of Effectiveness (MOE), and/or Measures Of Performance (MOP).

CAT normalizes the performance in order that any weight factors the Team chooses to use are meaningful. For example, if an MOE required an airborne electronic intelligence system to detect emitters at a specific range and within a specific time interval, the Team might consider the altitude and the speed at which the various aircraft candidates can operate.

FIGURE 2. The Performance Normalization Concept



Typically, altitude is measured in thousands of feet and speed in hundreds of knots. When the altitude is on order of magnitude higher than speed, the Team is able to understand one reason why CAT allows them to normalize performance. Therefore, CAT assists the PM Team to avoid induced weighting anomalies. Figure 2 illustrates the concept behind the normalization algorithm.

After normalizing the performance, CAT immediately generates a CAIV chart that graphically compares the performance as a function of TOC for the PM (Figure 1).

Implements DoDI 5000.2, Oct. 23, 2000

CAT summarizes TOC for each of the phases defined in the latest version of DoDI 5000.2:

- Concept and Technical Development (C&TD)
- System Development and Demonstration (SD&D)
- Production and Deployment (P&D)
- Operations and Support (O&S).

Another useful advantage of CAT is the inclusion of the online phase and sub-phase definitions. The definitions are displayed using the pop-up technique. By merely placing the cursor over the phase or sub-phase title, CAT automat-

ically displays the definition exactly as it appears in DoDI 5000.2.

Adheres to Military Handbook 881B (MIL-HNBK-881B) Work Breakdown Structure

CAT describes three generic products in accordance with the WBS defined in MIL-HNBK-881B. Currently, the three generic products are an aircraft system, a ground system, and a common ground station. Under a ground system, for example, CAT displays a Work Breakdown Structure for a "PRIMARY VEHICLE" as defined in MIL-HNBK-881B. Underneath "PRIMARY VEHICLE" are the other components such as "HULL/FRAME" or "SUSPENSION/STEERING."

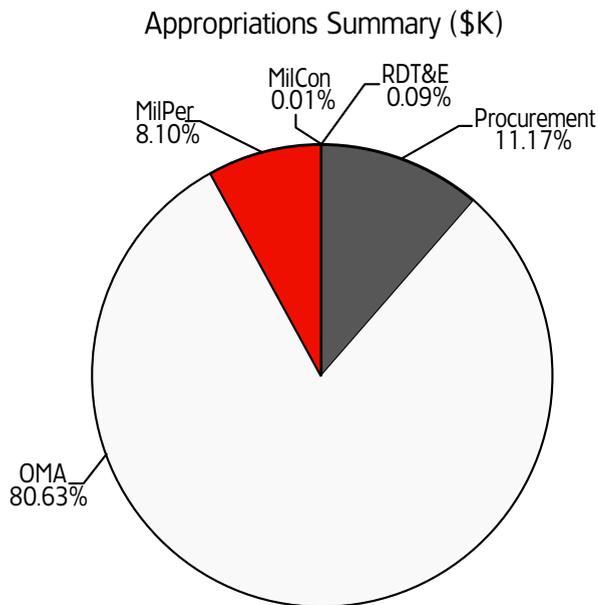
ARTOC plans to define other generic products at a later date.

With Excel© providing the execution environment for CAT, a PM Team may modify the WBS to fit their needs. As with the DoDI 5000.2 phase and sub-phase definitions, CAT also automatically displays the WBS definition when the user places the cursor over the title.

Allows Users to View TOC at Various WBS Levels

On many occasions, our PM Teams need to review costs at various WBS levels. CAT allows the Team to view TOC at

FIGURE 3. Appropriation Categories (Pie Chart Format)



Levels 1 through 5 as defined by MIL-HNBK-881B. Users select the desired view by depressing the “+” or “-” buttons on the left side of the display. When users depress the “+” button, CAT expands the view to the next level. When users depress the “-” button, CAT compresses the level.

Summarizes TOC into Apportionment Categories

To help ease the burden placed upon fund managers, CAT currently summarizes TOC into RDT&E, Procurement, and Operations and Maintenance, Army (OMA) by fiscal year. ARTOC plans to add other categories at a later date. The pie chart in Figure 3 provides a summary of the TOC using a notional example. Users may view TOC as a percentage or in \$K for RDT&E, Procurement, OMA, Military Personnel (MilPer), and Military Construction (MilCon).

Program and financial managers may find this capability, along with the other capabilities of CAT, useful for justifying their Program Objective Memorandum submissions.

Interfaces with ACEIT©

Knowing that CEAC is responsible to perform an economic analysis, ARTOC has ensured CAT is compliant with, and

interfaces seamlessly with ACEIT©. Although most PM Teams may not be competent users of ACEIT©, most are competent users of Excel©. Therefore, ARTOC designed CAT to execute in the more familiar environment of Excel©, while ensuring our Teams will be able to provide the results of their efforts to CEAC in ACEIT.

Assessing Usefulness, Implementing Enhancements

Although only a few advantages of CAT are discussed in this article, others do exist. CEAC and ARTOC have teamed to enhance and validate CAT, then solicit selected PM Teams to use this innovative tool. Through field use of CAT, CEAC and ARTOC will better assess its usefulness and implement enhancements that will better assist our primary customer—the PM Team.

Editor’s Note: If users desire a closer look at CAT, please contact Richard M. Childress, richard.childress@saalt.army.mil, (703) 681-7502; Army Col. Terrell W. Mathews, terrell.mathews@saalt.army.mil, (903) 457-6440, or Army Col. Robert L. Corlew, robert.corlew@saalt.army.mil, (703) 681-7501.

Defense Electronic Business Education and Training

The Defense Electronic Business Program Office is pleased to announce the inauguration of its eBusiness education Web site – *edLINK* – and the Defense Electronic Business education and training list serve.

The mission of the Defense Electronic Business Program Office is to accelerate integration of eBusiness techniques into DoD’s operations. We created *edLINK* to provide easy access to DoD eBusiness course information. The *edLINK* Web site is designed specifically to provide DoD instructors with information that can easily be incorporated into current and future courses. Prime candidates include courses related to program management, contracting, logistics, supply, and supervisor or manager development.

In addition to *edLINK*, our companion list serve broadcasts evolving, pertinent eBusiness information to DoD’s education and training community. We anticipate that the list serve also will become a useful communication network for the exchange of eBusiness curriculum-related information among all of the list serve members. To join the list serve, simply go to the *edLINK* Web site at <http://www.interactionnet.com/edLINK/index.htm> and follow the instructions provided. For *edLINK* **general** questions or information, contact Stanley Dubowski at:

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