Cost As an Independent Variable (CAIV) Tenets for Reducing Total Ownership Costs (TOC)

1. *CAIV is a Department of Navy strategic management process.*

CAIV is a Department of Navy (DoN) methodology for reducing TOC that entails setting aggressive, realistic cost objectives, and managing those objectives while meeting warfighters' requirements. TOC includes defense systems [1] life cycle costs, which include all the costs directly associated with research, development, procurement, operations, logistics support, and disposal. TOC also includes the indirect, linked costs that are associated with the total supporting infrastructure that plans, manages, and executes a defense system over its full life, and the cost of required common support items and systems that are incurred because of introduction of that defense system.

CAIV embraces the following fundamental, iterative actions over the life cycle to optimize warfighting capability within affordability constraints, and promote program stability:

- Establish mission area resource allocations for each resource sponsor community.
- Determine operational requirements to meet mission needs.
- Estimate total life cycle costs to satisfy requirements.
- Project long-range availability of resources in all affected appropriations based on resource sponsor priorities.
- Assess cost, schedule, and performance relationships.
- Establish aggressive target costs.
- Identify cost reduction opportunities and trade-offs to meet aggressive targets.
- Develop plans, metrics, and provisions for managing program execution.

2. CAIV is a top-down, bottom-up, continuous, and comprehensive process that facilitates decisions to influence TOC while still meeting the warfighters' needs.

[1] Defense systems: weapon, information technology system, or Advanced Technology Demonstration/Advanced Concept Technology Demonstration.

- CAIV is top-down because it starts at the highest DoN level to ensure that defense system effectiveness is optimized within constraints of available and projected resources.

- CAIV is bottom-up because each government-industry Integrated Product Team (IPT) member is empowered to recommend cost savings initiatives to decision-makers.

- CAIV is continuous because it originates with the determination of affordability constraints and proceeds through the Analysis of Alternatives (AOA) to identify operational requirements and establish cost targets, and it is a consideration throughout the development, production, operating and support, and disposal phases.

- CAIV is comprehensive because involvement of the entire DoN team is vital for achieving maximum benefit from implementation. Requirements generation, planning, programming, budgeting, acquisition management, logistics support, and sustainment communities are actively engaged in efforts to reduce costs.

3. *CAIV recognizes that limited resource availability drives TOC Target.*

Fiscal constraint is a reality that all stakeholders in the DoN must recognize. Based on the determination of resource availability, a TOC cost target must be set for the system.

The TOC target is the sum of all resources required to execute a program within the projected affordability limit, by appropriation, by year. The TOC target encompasses an acquisition cost target and an Operating and Support cost target. This TOC target constrains all program costs. This management to a TOC target is a key element of CAIV, and its importance cannot be overstated. Formerly, the defense system's design drove cost.

4. CAIV employs a hierarchy of cost reduction activities, expanding the potential trade space.

The following lists the cost reduction activities in a recommended order of priority for implementing CAIV:

- Processes, activities, and technology choices generate costs through their use of personnel, time, and materials. Analyses should be continuously performed to improve processes and activities, and to identify and eliminate, non-value-added and deficient cost-to-benefit processes and activities. Technology opportunities should be assessed and value-based

technology solutions should be implemented throughout the life cycle in order to minimize cost.

- Requirements, which do not directly contribute to warfighters' needs, should be scrutinized for relaxation or removal during AOA and throughout the life cycle.

- Trade-offs that reduce cost while still meeting all operational requirements should be conducted during the life cycle.

- Finally, cost performance trade-offs of user requirements resulting in a breach of the approved operational requirement threshold are only to be accomplished as a last resort, with the agreement of the Milestone Decision Authority and CNO/CMC.

5. *CAIV recognizes that carefully structured contracting incentives can offer great leverage in achieving CAIV objectives.*

Contracts should incentivize cost reduction activities that result in effective defense systems that are affordable over their life cycle. Contracts should include incentives for contractor participation in the CAIV process. DoN CAIV flagship programs offer a source of incentive approaches. Some examples of these incentives may include:

- Award fees during design and development.

- Procurement price commitment curve for production.

- Profits above typical margins if contract cost or schedule objectives are significantly improved upon.

6. *CAIV requires risk management.*

An unavoidable consequence of setting aggressive, realistic cost objectives is an increase in risk. Careful risk analysis, instituting, and implementing an effective risk management plan, defining and measuring meaningful metrics, establishing incentives, and utilizing the knowledge and experience of the DoN organization will result in the effective implementation and management of CAIV and the minimization of resultant risk.

7. CAIV is a cradle to grave process.

For new systems, CAIV should be initiated during the requirements generation phase. Initiating CAIV before process and product design maturity offers great leverage for cost reduction. Continuous execution of CAIV throughout the life cycle by process and product improvements may yield unforeseen opportunities for cost saving benefits.

For fielded systems, CAIV should be initiated and refined where practical. These production and legacy programs can also apply the same tenets and achieve lower costs.