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Cost Engineering and Cost Engineering part 1

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Total Ownership Cost (TOC) and Cost as an Independent Variable (CAIV)

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2. Definitions: TOC

Total Ownership Cost (TOC) – Total Ownership Cost includes all costs associated with the research, development, procurement, operation, logistical support and disposal of an individual weapon system including:

- the total supporting infrastructure that plans, manages, and executes that weapon system program over its full life,
 - and the cost of requirements for common support items and systems that are incurred because of introduction of that weapon system,
- but excludes indirect, “non-linked” Navy infrastructure costs that are not affected by individual weapon systems’ development, introduction, deployment or operations.

(Source: ASN(RDA) Total Ownership Cost Strategic Goal Management Board)

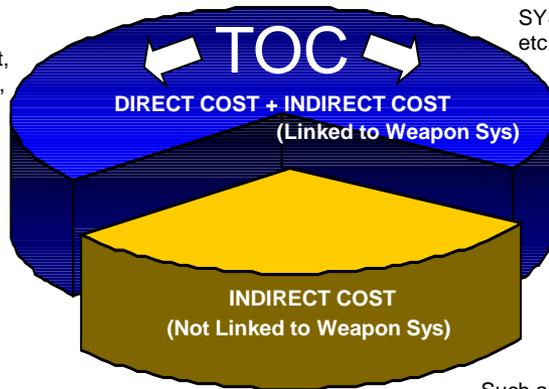
TOC is a Noun

2. Definitions: TOC

Total Ownership Cost (TOC)

“Total Navy”

Such as:
Development Cost,
Procurement Cost,
Operating and
Support Cost,
SYSCOM PM
Staff, Etc.



Such as:
System Training Site,
Navy Resource Sponsor,
SYSCOM, Contracts Office,
etc.

Such as:
Cornet Player in Navy Band,
of Shore Based Hospitals,
Etc.

Definition:

“Total Ownership Cost includes all costs associated with the research, development, procurement, operation, logistical support and disposal of an individual weapon system including the total supporting infrastructure that plans, manages and executes that weapon system program over its full life.”

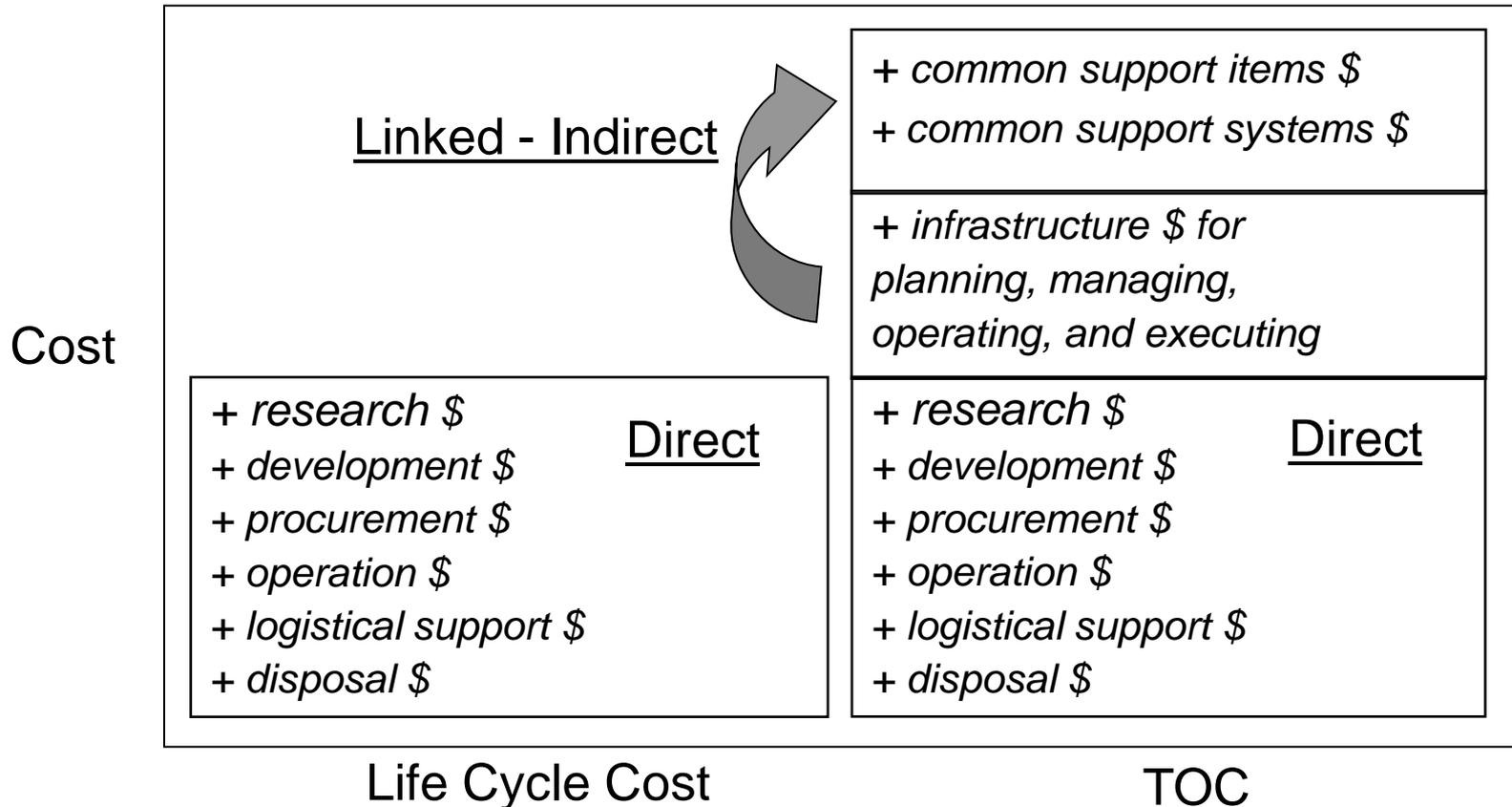
And: “The cost of requirements for common support items and systems that are incurred because of introduction of the weapon system.”

But: “Excludes indirect “non-linked” Navy infrastructure costs that are not affected by individual Weapon systems’ development, introduction, deployment or operations.”

TOC is an Inclusive Concept of the Totality of Costs Associated with a Weapon System.



2. Definitions: TOC



TOC is More than LCC

For the TOC Element Structure, see <http://www.navsea.navy.mil/sea017/toc.htm>



2. Definitions: CAIV

Cost as an Independent Variable (CAIV) – CAIV is a strategy for acquiring and supporting defense systems that entails setting aggressive, realistic cost objectives (and thresholds) for both new acquisitions and fielded systems, and managing to those objectives. The cost objectives must balance mission needs with projected out-year resources, taking into account anticipated process improvements in both DoD and defense industries. This concept means that once the system performance and objective(s) are decided (on a basis of cost-performance trade-offs), the acquisition process will make cost more of a constraint, and less of a variable while obtaining the needed military performance.

(Source: NAVSEA TOC / CAIV PAT)

CAIV is a Management Strategy from which Affordable, Executable Programs can Emerge.



2. Definitions: CAIV Policy Guidance

THE ASSISTANT SECRETARY OF THE NAVY
MEMORANDUM FOR THE SECRETARY OF THE NAVY
UNDER SECRETARY OF THE NAVY

FROM: John W. Douglass, Assistant Secretary of the Navy (RD&A)

SUBJECT: COST AS AN INDEPENDENT VARIABLE (CAIV) POLICY GUIDANCE – ACTION MEMORANDUM

PURPOSE: The Department of the Navy's CAIV policy guidance is submitted for Secretary of the Navy signature

DISCUSSION: Change three to the DoD 5000 series (currently out for Service concurrence with a January 1998 deadline) places significant added requirements on the Program Manager to implement CAIV (i.e., CAIV-based objectives in the Acquisition Program baseline). There are widely varying definitions and understandings about what constitutes CAIV and what needs to be done to execute CAIV. This policy guidance was developed by an IPT comprised of representation from OPNAV, PEOs, SYSCOMs, PMs, and Marine Corps. Its purpose is to establish a singular and comprehensive statement on what constitutes CAIV in the Department of the Navy. The next step in the DoN CAIV implementation is to revise and restate our processes for what needs to be done to properly execute CAIV. These process changes are in development. Presently, there is a need to establish a consistent understanding within the Department on exactly what CAIV is and what it is not. This policy guidance serves that purpose....

ASN (RDA) Weighs-In with Advice for Implementing CAIV.



2. Definitions: CAIV Policy Guidance

1. CAIV is a DoN strategic management process.
2. CAIV is a top-down, bottom-up, continuous, and comprehensive process.
3. CAIV recognizes that limited resource availability drives TOC target.
4. CAIV employs a hierarchy of cost reduction activities, expanding the potential trade space.
5. CAIV recognizes that carefully structured contracting incentives can offer great leverage in achieving CAIV objectives.
6. CAIV requires risk management (due to aggressive, realistic cost objectives).
7. CAIV is a cradle to grave process.

CAIV is a Verb; It Has Seven Tenets.



2. Definitions: CAIV Policy Guidance

1. CAIV is a DoN strategic management process.

- Establish mission area resource allocations for each sponsor community
- Determine operational requirements to meet mission needs
- Estimate TOC to satisfy requirements
- Project long-range availability of resources, by appropriation, by priority
- Assess cost, schedule, and performance relationships
- Establish aggressive cost targets
- 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.

- Top-down – Effectiveness optimized within constraints of available and projected resources
- Bottom-up – Government-industry IPTs empowered to recommend cost saving initiatives
- Continuous – From affordability constraint determination, to AoA cost targets, and throughout development, production, operation and support, and disposal

The Seven Constituent Tenets of CAIV; Pay Particular Attention to #1.



2. Definitions: CAIV Policy Guidance

3. **CAIV recognizes that limited resource availability drives TOC target.**
 - Management to the sum of resources required to execute a program within the projected affordability limit, by appropriation, by year
4. **CAIV employs a hierarchy of cost reduction activities, expanding the potential trade space.**
 - Improve processes and activities, eliminate non-value-added and deficient cost-to-benefit activities
 - Relax or remove requirements that do not contribute to the warfighter's needs
 - Cost-performance trade-offs that reduce cost, but meet all operational requirements
 - Relax operational requirements' threshold values
5. **CAIV recognizes that carefully structured contracting incentives can offer great leverage in achieving CAIV objectives.**
 - Award fee during design and development
 - Procurement price commitment curve for production
 - Profits above typical margins, if contract cost or schedule objectives are significantly improved

The Seven Constituent Tenets of CAIV; Pay Particular Attention to #3 and #4.



2. Definitions: CAIV Policy Guidance

6. CAIV requires risk management (due to aggressive, realistic cost objectives).

- Careful risk analysis
- Instituting and implementing a Risk Management Plan
- Defining and measuring meaningful metrics
- Establishing incentives

7. CAIV is a cradle to grave process.

- Initiated during the requirements generation phase
- Continuous throughout life cycle
- Product and process improvement

The Seven Constituent Tenets of CAIV; Pay Particular Attention to #6.