

*Accurate
Credible
Defensible*



Should Cost Management Naval Sea Systems Command

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Overview

- Why are we doing this?
 - Why do naval vessels cost so much?
 - Procurement profile
 - Cost growth
- An evolving approach
 - Leadership direction and thoughts
 - Will-cost and should-cost defined
 - Example of SYSCOM cost estimating process
 - Should-cost management construct
 - How the NAVSEA 05C Portfolio Assessment Team can help



WHY ARE WE DOING THIS?

“Why do naval vessels cost so much?”

A 1939 perspective...

Summary from the **10 July 1939** Secretary of the Navy report to answer the repeated question from members of Congress and others:
“Why do naval vessels cost so much?”

Current factors contributing to increasing ship costs:

- Increased complexity/capability
- Lower procurement quantities
- Specialized materials and systems
- Diminishing vendor base (little or no competition)

The Dilemma with respect to Ship Costs Remains the Same

SUMMARY

From the above information and comment the principal items of interest with reference to the cost of Naval vessels are as follows:

The cost of Naval vessels increase with the progress of marine engineering and Naval construction.

There has been a marked increase in the horsepower of present day ships compared to older ships of the same tonnage.

There has been an improvement in the character of the material used and in the construction of Naval vessels. For example, the steel is of a higher quality and requires special treatment. It is used to a greater extent in both hull and deck protection.

Costs are relative only for vessels of the same design built during the same approximate periods.

Costs are affected in the same way that the cost of living is affected from an economic and social point of view.

Reasonable cost of Naval vessels can only be determined by a complete knowledge of cost of current labor and material prices and production methods on the detailed items making up the group costs along the technical lines of work and material.

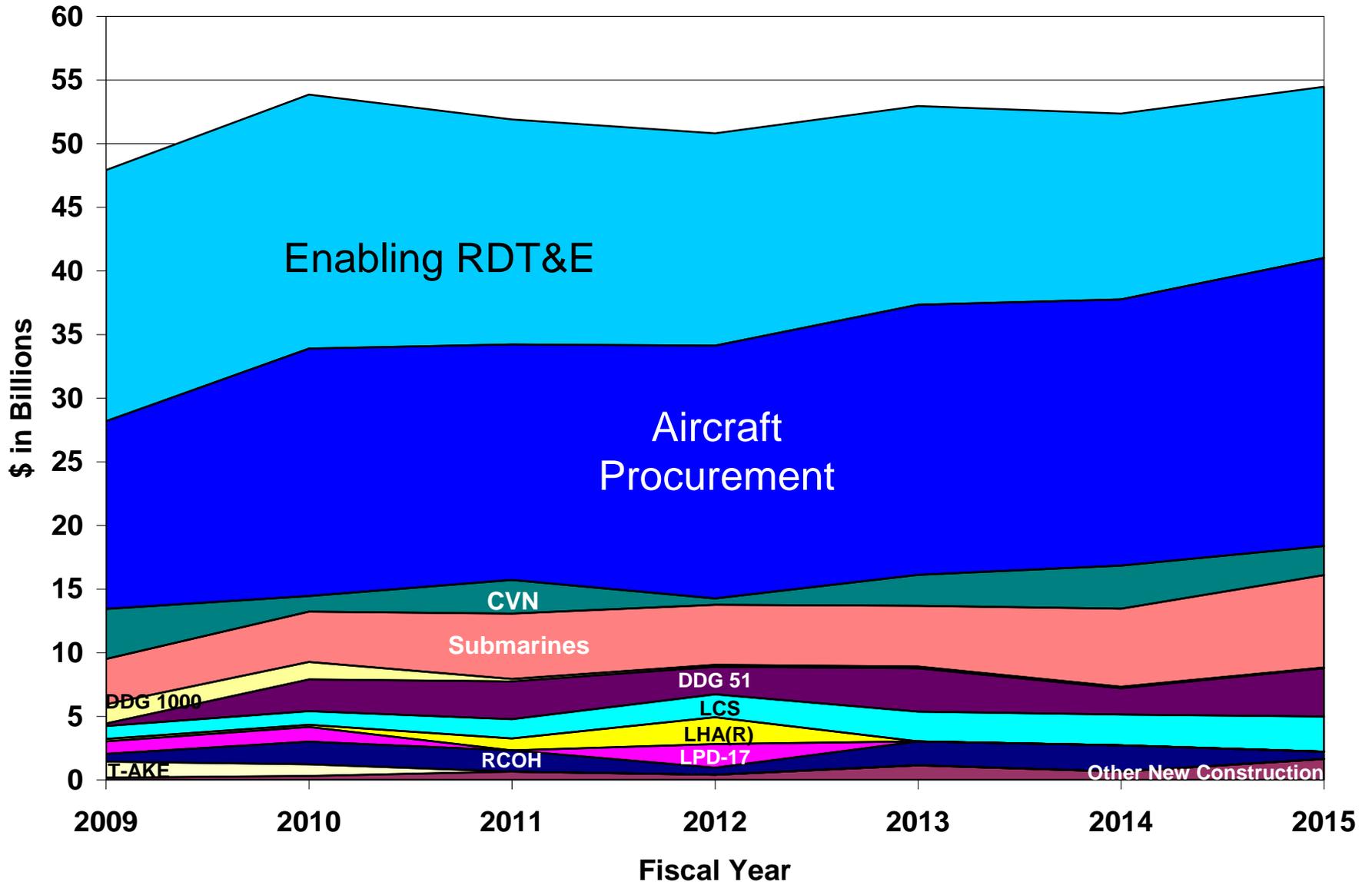
More stress and care must be taken in approving estimates to make sure that they are reasonable and held to in the cost of production.

When contracts are negotiated the question of costs should be investigated and a detailed knowledge of approximate costs obtained.

When you pay the full price for the best you can buy the costs will always be high.

Navy R&D and Procurement

FY2011 President's Budget



“Do More Without More”

“...I am **seeking to restore affordability and productivity** through initiatives in the following five areas: (1) Targeting Affordability and Controlling Cost Growth; (2) Incentivizing Productivity and Innovation in Industry; (3) Promoting Real Competition; (4) Improving Tradecraft in Services Acquisition, and; (5) Reducing Non-Productive Processes and Bureaucracy.”

“...the efficiencies...can make a significant contribution to achieving the **\$100 billion redirection of defense budget dollars from unproductive to more productive purposes.**”

“To put it bluntly: we have a continuing responsibility to procure the critical goods and services our forces need in the years ahead, but we will not have ever-increasing budgets to pay for them. **We must therefore strive to...DO MORE WITHOUT MORE.**”

Remarks from Undersecretary ATL Ashton Carter Sept 14, 2010 Memo “Better Buying Power”



Office of the Under Secretary of Defense for
Acquisition, Technology and Logistics

We must reassess our business practices to manage defense dollars in a more efficient manner

WILL COST / SHOULD COST

ASHTON B. CARTER, SECDEF, MEMO (14 SEP 2010)

MEMORANDUM FOR ACQUISITION PROFESSIONALS

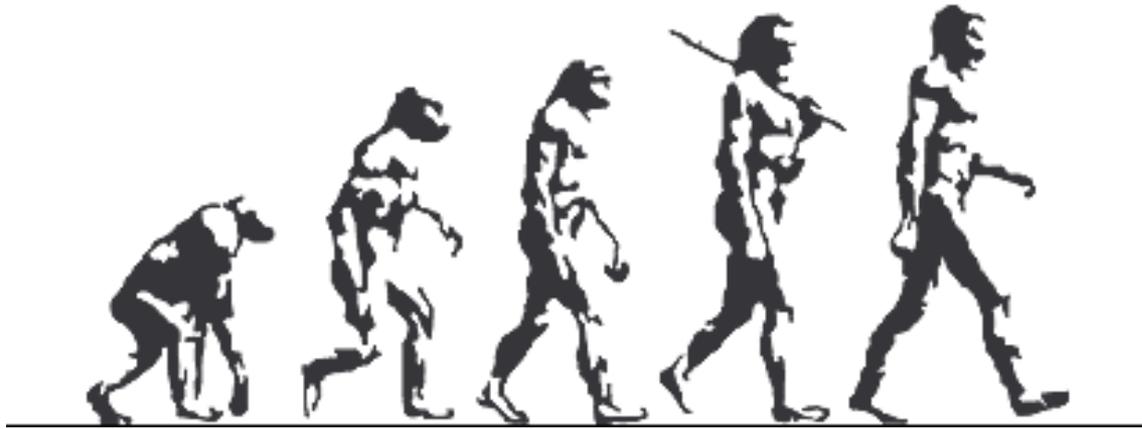
SUBJECT: Better Buying Power; Guidance for Obtaining Greater Efficiency and Productivity in Defense Spending

“TARGET AFFORDABILITY AND CONTROL COST GROWTH”

Drive productivity growth through Will Cost/Should Cost Management.

During contract negotiations and program execution, our managers should be **driving productivity improvement in their programs**. “They should be scrutinizing every element of program cost, assessing whether each element can be reduced relative to the year before, challenging learning curves, dissecting overheads and indirect costs, and targeting cost reduction with profit incentive – in short, executing to what the program ***should cost***.”

“... I will require the manager of each major program to conduct a Should Cost analysis justifying each element of program cost and showing how it is improving year by year or meeting other relevant benchmarks for value.”



AN EVOLVING APPROACH

Leadership Direction and Thoughts

- Adopt Will- and Should-Cost management - use historically informed independent estimation (will-cost estimates) to inform managing of programs to cost objectives (should-cost estimates)
- Managers should be driving productivity into their program - need to scrutinize every element of program cost
 - Use will-cost estimate to support budgeting and programming
 - Reasonable extrapolations from history
 - Represents business-as-usual management
 - To interrupt cycle of self-fulfilling prophecy to will-cost estimate, program manager must bring forward a should-cost estimate
 - Justify every element
 - Show how it is improving year by year or meeting other benchmarks for value
- Applies to ACAT I, II, and III programs

Leadership Direction and Thoughts - (continued)

- Measure progress
 - If you're not keeping score, its only practice
 - You cannot simply wave your hand and hope for success
- Industry can succeed in this environment
 - Tie performance to higher profit
 - Affordable programs won't face cancellation

Enter the major cost drivers identified in the "Will Cost" estimate			The following section documents the activities required to handle the initiative described in the section above. These activities may include risk mitigation steps (to prevent a risk from occurring) as well as contingency activities focused on cost drivers and reducing costs. In either case, each activity must be explicitly tied to the program milestone by which it must be implemented.											
Cost Driver	Estimated Value	Target Value	Completed	Event #1	Cost Reduction Activities Supporting the Event	Completion Date	Cost Reduction Success Rating			Cost Reduction Anticipated	Cost Reduction Achieved	Comments		
							Impact	Probability	Mitigation					
					Main Activity					\$	-	\$	-	
					Sub Step 1									
					Sub Step 2									
					Sub Step 3									
Cost Driver	Estimated Value	Target Value		Event #2	Cost Reduction Activities Supporting the Event	Completion Date	Impact	Probability	Mitigation	Cost Reduction Anticipated	Cost Reduction Achieved			Comments
					Main Activity					\$	-	\$	-	
					Sub Step 1									
					Sub Step 2									
					Sub Step 3									
Cost Driver	Estimated Value	Target Value		Event #3	Cost Reduction Activities Supporting the Event	Completion Date	Impact	Probability	Mitigation	Cost Reduction Anticipated	Cost Reduction Achieved			Comments
					Main Activity					\$	-	\$	-	
					Sub Step 1									
					Sub Step 2									
					Sub Step 3									
Cost Driver	Estimated Value	Target Value		Event #4	Cost Reduction Activities Supporting the Event	Completion Date	Impact	Probability	Mitigation	Cost Reduction Anticipated	Cost Reduction Achieved			Comments
					Main Activity					\$	-	\$	-	
					Sub Step 1									
					Sub Step 2									
					Sub Step 3									
Cost Driver	Estimated Value	Target Value		Event #5	Cost Reduction Activities Supporting the Event	Completion Date	Impact	Probability	Mitigation	Cost Reduction Anticipated	Cost Reduction Achieved			Comments
					Main Activity					\$	-	\$	-	
					Sub Step 1									
					Sub Step 2									
					Sub Step 3									
Cost Driver	Estimated Value	Target Value		Event #6	Cost Reduction Activities Supporting the Event	Completion Date	Impact	Probability	Mitigation	Cost Reduction Anticipated	Cost Reduction Achieved			Comments
					Main Activity					\$	-	\$	-	
					Sub Step 1									
					Sub Step 2									
					Sub Step 3									
Cost Driver	Estimated Value	Target Value		Event #7	Cost Reduction Activities Supporting the Event	Completion Date	Impact	Probability	Mitigation	Cost Reduction Anticipated	Cost Reduction Achieved			Comments
					Main Activity					\$	-	\$	-	
					Sub Step 1									
					Sub Step 2									
					Sub Step 3									
Cost Driver	Estimated Value	Target Value		Event #8	Cost Reduction Activities Supporting the Event	Completion Date	Impact	Probability	Mitigation	Cost Reduction Anticipated	Cost Reduction Achieved			Comments
					Main Activity					\$	-	\$	-	
					Sub Step 1									
					Sub Step 2									
					Sub Step 3									

Will-Cost and Should-Cost Defined

- Two separate cost estimates
 - A non-advocate will-cost estimate for budgeting and programming
 - A program manager should-cost estimate for program management execution

WILL COST: Establish Budget

“Reasonable Extrapolation”

- Continually updated with current available information for budget process

WHO: NOW

- Program Offices
 - PEOs
 - Cost Staffs
 - SECNAV
 - OSD
 - Congress
- Normal business for program procurement support

SHOULD COST: Drive Productivity

“Scrutinize Every Element of Cost”

- Justify “each” element of program cost to develop a realistic price objective for negotiation purposes

WHO: NOW

- Program Offices
 - PEOs
 - Cost Staffs
 - SECNAV
 - OSD
- Will be developed by program teams with qualified expertise from cost estimating, technical, contracting, and logistics communities

Will-Cost Estimate Definition

- The budget baseline will be based on a non-advocate will-cost estimate.
 - Aims to provide sufficient resources to execute the program under normal conditions, encountering average levels of technical, schedule, and programmatic risk (usually no less than 50% confidence level).
 - Supports the budget and ensures sufficient funding to provide confidence that: 1) the program can be completed without the need for significant adjustment to program budgets, and 2) the program can avoid Nunn-McCurdy or critical change breaches.
 - Prepared by an office or entity operating outside the program office chain of command.
 - Use for all acquisition, budget, and program execution decisions (e.g. source-selection, contract negotiations, IBRs, major reviews, PMB monitoring, annual budget/programming).

Should-Cost Definition

- “Program-Level Should Cost Estimate” - not just the immediate contract!
- Who owns? Program office develops, owns, reports & tracks the program-level should cost estimate. Program manager (PM) recommends to MDA (AT&L/CAE) for approval.
- When required? All milestone decisions or other decisions going before OUSD(AT&L) and CAE; annual updates/progress reporting.
- Which programs? ACAT I, II and III
- Intent:
 - A DoD internal management tool used to incentivize performance to targets.
 - Based on realistic technical and schedule baselines and assumes success-oriented outcomes from implementation of efficiencies, lessons learned, and best practices.
 - Designed to drive productivity improvements in our programs and will incorporate results of contract direct and indirect cost reviews (See FAR 15.407-4 and DFARS 215-407-4 should-cost reviews) when they are conducted.

Should-Cost Definition - (continued)

- Various approaches, but three recommended:
 - Use will-cost estimate as the base and apply discrete, measurable items and/or specific initiatives for savings against that base
 - Use bottoms-up approach (different methods from will-cost estimate) without a detailed FAR/DFARS should-cost review and include actionable content to achieve cost below the will-cost estimate
 - Use bottoms-up approach (different methods from will-cost estimate) with a detailed FAR/DFARS should-cost review and include actionable content to achieve cost below the will-cost estimate
- Should-Cost initiatives will be categorized as:
 - Near-term and long-term initiatives
 - Program driven (within program manager’s control), “Service Driven (within the services control),” or “Externally Driven (outside service control)”

Should-Cost Definition -

(continued)

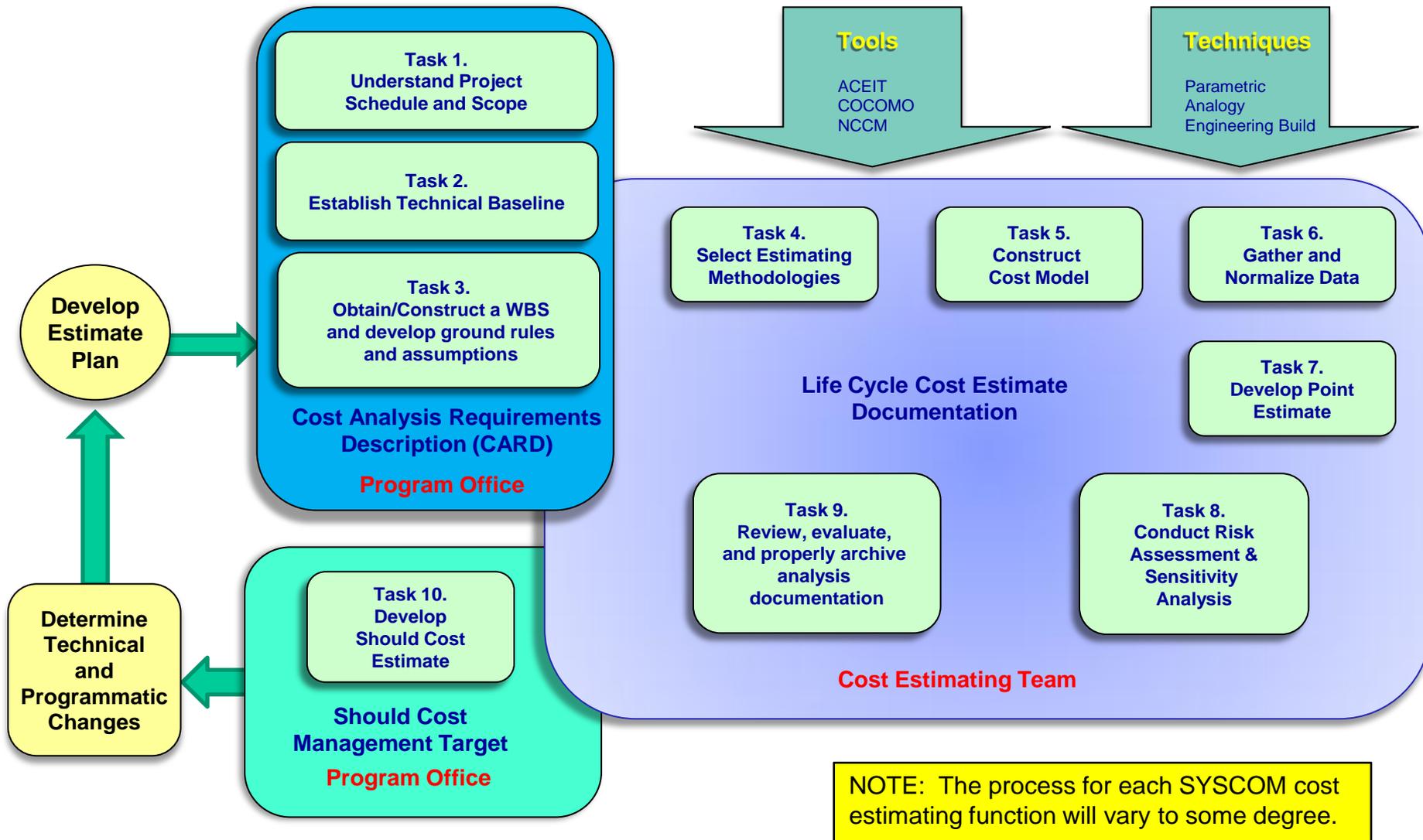
- Broad challenges by management to reduce cost through straight reductions by a specified percentage or dollar value against the will-cost estimate are not valid should-cost estimates. Estimates are expected to have specific actionable content associated with reductions.
- Most items outside the control of the program office and inconsistent with the current program of record are outside excursions and not appropriate for the should-cost estimate.
 - Example: economic production rates
- Anything requiring significant investment for completion and an increase to the budget is outside the scope of the should-cost estimate and should be shown separately for consideration.

Should-Cost Definition -

(continued)

- Program Managers should consider:
 - Seeking assistance from outside organizations (e.g., the SYSCOM Cost Staffs, DCMA, Industry) as they develop should-cost estimate
 - Close collaboration with appropriate center level functional organizations
 - Will-cost estimate excursions from the non-advocate organization and all previously defined should-cost estimates

Example of a SYSCOM Cost Estimating Process (Includes “Should Cost” estimates)



The objective of this task is to gather enough project information to determine estimate timeline and technical requirements. All historical documentation should be thoroughly reviewed .

- Gather all relevant project data for evaluation.
- Evaluate the project’s mission needs, objectives, and goals and assess the operating environment and life cycle phase for the project
- Review all existing project documentation, including technical baseline, previous estimates, budget data, and programmatic data such as schedules and earned value metrics.
- Propose a cost estimate schedule and assign program office personnel to assist the cost estimating team

Program Office Task 2: Establish a common technical baseline document used by the project team to develop a cost estimate

The objective of this task is to establish a common technical baseline document used by the project team to develop a cost estimate.

- Describe system characteristics, configuration, quality factors, quantities, security, its operational concept, and the risks associated with the system at the most detailed level possible.
- Describe the project's milestones, schedule, management strategy, implementation/deployment plan, test strategy, security considerations, and acquisition strategy.
- Document the common baseline in a Cost Analysis Requirements Description (CARD) or similar document to be used as the basis for developing the cost estimate and constructing the cost model.

Program Office Task 3: Obtain/Construct a Work Breakdown Structure (WBS) and develop ground rules and assumptions

The objective of this task is to provide a consistent structure that includes all elements of the project the LCCE will cover and to develop ground rules and assumptions to communicate the context/environment within which the estimate is being developed.

- Tailor the acquisition, construction, and improvement (AC&I) and procurement portion of the project WBS based on the applicable appendix in MIL-STD-881A, Department of Defense Work Breakdown Structures.
- Tailor the Operations and Support (O&S) portion of the project WBS in accordance with the Department of Defense Operating and Support Cost Estimating Guide.
- Create a project-specific WBS dictionary for each element of the WBS.
- Ensure the cost estimating WBS is consistent with other project documentation such as budgeting, earned value management (EVM), project management plan (PMP), test and evaluation master plan (TEMP), acquisition performance management system (APMS) contracts, etc., to enable improved cost estimation, future data collection, and performance measurement and management
- Establish and document a set of programmatic, technical, and schedule ground rules and assumptions

Cost Estimating Team Tasks 4-6:

Task 4: Select Cost Estimating Methodologies. The objective of this task is to select the best cost estimating methodologies (or combination of methodologies) given the data available and the life-cycle phase of the project.

Task 5: Select and construct the cost estimate model. The objective of this task is to select the most appropriate tool/model or to create a model to estimate the cost. Automated Cost Estimating Integrated Tools (ACEIT) and Naval Common Cost Model (NCCM) are the preferred cost estimating tool suites used by NAVSEA 05C.

Task 6: Gather and normalize data. Data collection is one of the most difficult and time-consuming, and costly activities within the cost estimating discipline. The objective of this task is to arm the cost estimator with as much information as possible in order to develop the most accurate and justifiable cost estimate. This includes properly identifying the required data and potential data sources, acquiring and normalizing the data and inflating appropriately.

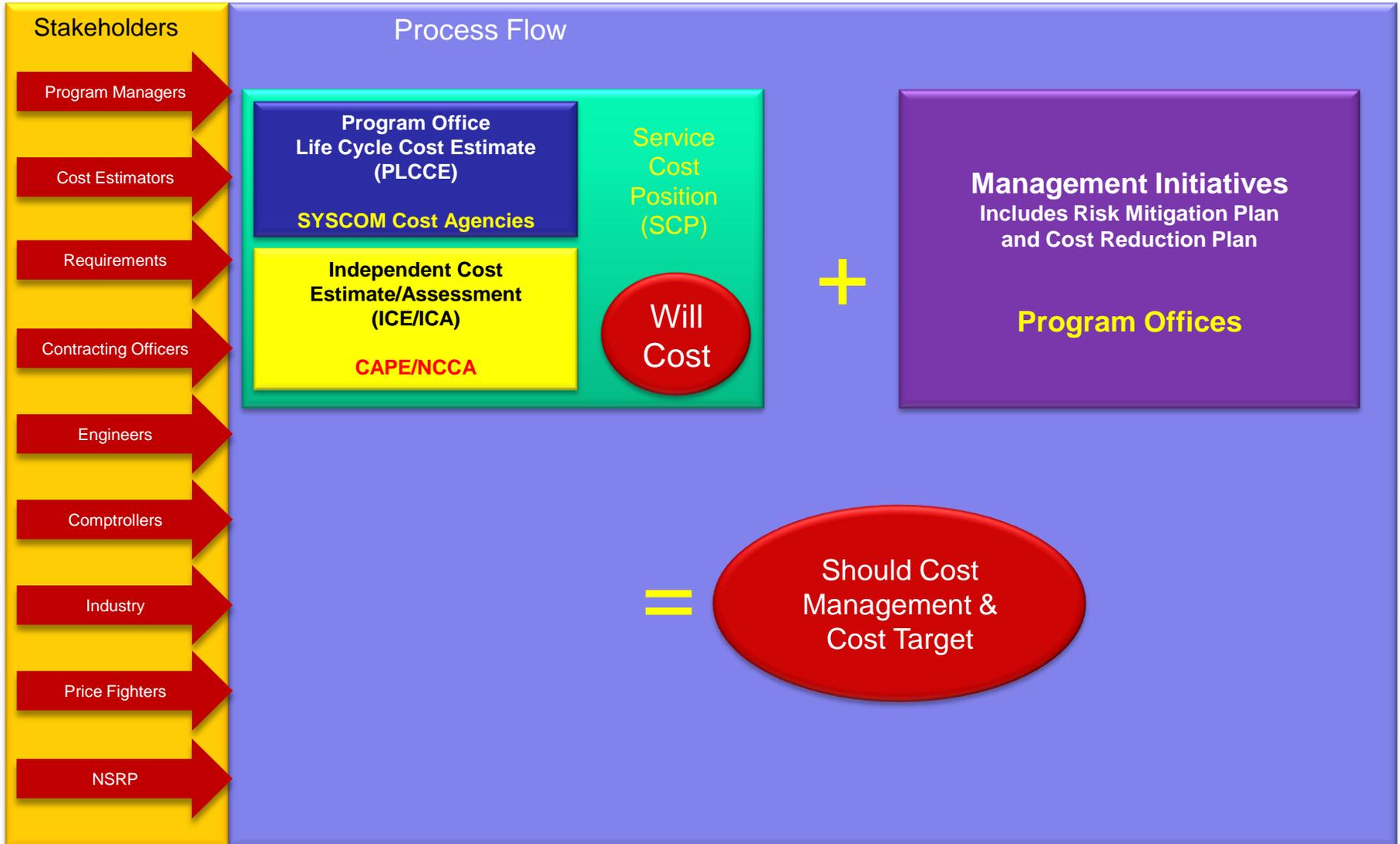
Cost Estimating Team Tasks 7-9:

- ***Task 7: Develop Point Estimate.*** The objective of this task is to create an accurate LCCE point estimate for use in conjunction with the cost risk assessment to develop the final estimate. It involves populating an ACEIT model with the normalized data collected, verifying ground rules and assumptions, ensuring the estimate incorporates all applicable costs, and conducting any cross-check estimate or estimate reconciliation.
- ***Task 8: Conduct Risk Assessment and Sensitivity Analysis:*** The objective of this task is to apply appropriate levels of risk and uncertainty to the estimate at the lowest level of detail in order to develop credible risk-adjusted view or project cost.
- ***Task 9: Review, evaluate, and properly archive analysis documentation.*** Cost estimates must be updated on a regular basis. Using checklists to evaluate the completeness of the estimate documentation is a must. Properly archiving the estimate ensures it can be retrieved when needed.

Program Office Task 10:

- *Task 10: Develop Should Cost Estimate.* Analysts Program Offices must work with cost analysts to facilitate cost reduction plans and risk mitigation plans to fully and thoroughly document the methodology and sources used for each cost element. This is done in parallel with building the point estimate, to ensure that any cost analyst could replicate their quantitative methods and results, and use the estimate for its intended purpose.

Should Cost Management Construct



Will-Cost/Should-Cost

- Supporting Evidence for Should Cost:
 - Production rates economical and historically stable
 - Shorten program timeline
 - Complete R&D effort in FY16 vs. FY17 as currently planned in ICE
 - Potential production rate increase
- Strong negotiation positions
 - Historical cost, learning curve, and understanding of production efficiencies
 - Long-term supplier agreements
- Parametric model MOA established with contractor for key routine functions/costs
- Open system architecture design eases future enhancements
- Aggressive “Breakout” IPT established for appropriate technical data packages (TDP) and data rights

Another Potential Template

Title: Cost Savings Assessments By System (BY10\$M)

	System 1	System 2	System 3	System X
Potential Savings	\$xxxM (\$yy/unit)	\$xxxM (\$yy/unit)	\$xxxM (\$yy/unit)	\$xxxM (\$yy/unit)
Adjusted Learning		\$xxM	\$xxM	\$xxM
	-Cost improvement reasonable (no adjustment made)	-Forecast using historical learning /rate curves	-Forecast Labor at historical improvement curve levels -Forecast material costs at composite level with 95% rate curve	-Touch learning reasonable (not adjusted) -Forecast material costs at composite level w/ 95% rate curve -Historical learning applied to Sustain Eng.
Process Improvement	\$xxM	\$xxM	\$xxM	\$xxM
	-Eliminate redundant work -Move work to more efficient facility	-Reduce SEPM staff based on history	-Acquire new sources for widgets A, B, and C	-Move work to more efficient facility -Implement cost reduction initiatives
Contracting	\$xxM	\$xxM	\$xxM	\$xxM
	-Eliminate proposal prep with priced options	-Sync buys w/ other customers -Reduce proposal activity -Reduce flight test activity	-Negotiate lower Material Handling and Flight test support	-Account for concurrent buys with other customers
Other	\$xxM	\$xxM		\$xxM
	-DCMA use new rate projection methods	-DCMA use new rate projection methods	-Not assessed	-DCMA use new rate projection methods
Accelerate Buys	\$xxM	\$xxM	\$xxM	
	-Increase buy rate, shortens program and amortizes fixed costs over more units per lot	-Increase buy rate, shortens program and amortizes fixed costs over more units per lot	-Increase buy rate, shortens program amortizing fixed costs over more units per lot	-Not assessed

SPO Driven Savings
Service Driven Savings
External Driven Savings

When are Should-Cost Estimates Required?

Event	Will-Cost estimates (Initial / Update)	Program Should-Cost estimates (Initial / Update)	Indirect/Direct Contract Cost Reviews
MS A	Initial	Initial	N/A
Yearly Updates	Update	Update	N/A
MS B	Update (Initial setting of Budget Baseline for Nunn-McCurdy metrics)	Update (Sets Internal Program Execution Baseline)	Initial to Support Contract Actions (Optional)
Yearly Updates	Update	Update	Optional
MS C Decision / LRIP 1 Contract Award	Update	Update	Optional Refer to recommendations IAW FAR 15.407-4 -- Should-cost Review and DFARS 215.407-4 Should-cost
Yearly Updates	Update	Update	Optional
FRP (FDDR) Decision / Contract Award	Update	Update	Optional Refer to recommendations IAW FAR 15.407-4 -- Should-cost Review and DFARS 215.407-4 Should-cost review.
Yearly Updates	Update	Update	Optional

In addition, consider for the following program events:

- Critical Design Review
- First LRIP award out of option contracts
- Interim Contractor Support and Contractor Logistic Support first contract awards
- Organic Logistics Infrastructure (e.g., depot stand-up, DLA)



QUESTIONS?