



# **ROLLING ON THE AFFORDABILITY RIVER**

**(While Managing the Acquisition Program in the Rapids)**

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# What is Affordability?

**A given purchase meets the funding, performance and time constraints imposed or expected by the acquirer over its life cycle.**

**Resources are balanced with the corresponding requirements and schedules.**



# When an acquisition program is affordable...

- Our jobs are easier
- The initial life cycle cost estimate was correct; actual expenditures align with expectations, fit easily within fiscal constraints / budget
- Minimal or internally offsetting cost overruns and schedule slips
- Managing technical complexity is a breeze
- Technology doesn't outrun its limits and adequately matures
- Program reviews are festive gatherings to spread the good news of continued successes
- The program director and contractor senior management are in a state of calm serenity
- POM and FYDP budget requests flow through the Pentagon scrutiny cycle effortlessly

*The program is on track, on time, floating steadily through the Milestones and primed for successful system development, test, production or delivery*

# SPOILER WARNING!!!



**The aforementioned calm water state is about to turn frothy.**



# **REALITY:**

## **Roiling Whitewater in the Program Office**





# Some Program Hazards

*Poor  
upfront  
planning*

*Invalid  
integrated  
master  
schedule*

*Technical  
challenges*



*Scope creep*

*Key  
performanc  
e parameter  
tradeoffs*

*Budget cuts,  
funding  
turbulence*

*Tweaking  
of design  
variables*

*Inadequate  
risk  
mitigation*

*Shifting  
system  
requirements*

# *Pushing The Envelope Sends Water Over the Gunwales*



## **THE SET UP**

- Friday afternoon call from Prime: “we discovered a technical maturity issue”
  - Sub-par test results
  - New alloy unstable
  - Unique part failed
- Tech risk was originally identified as “High”
  - System Engrg Plan in M/S A identified concerns with pushing the tech envelope
  - ...But, it was “mitigated away”

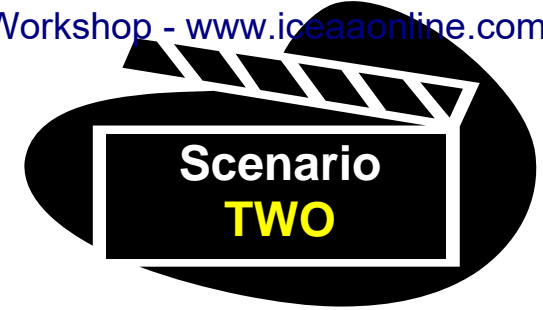
## **THE REACTION**

- All hands on deck!
  - Working the weekend
- SPO huddle and frantic IPT meetings
  - Deep dives on potential technical solutions
  - Analyze the cost, schedule, performance ramifications
- How can aspects of affordability help?

## **THE OUTCOME**

- SPO underwent a process transformation
  - Objectively assessed and properly scoped risk
  - Verify risk mitigations
  - Trade space analyzed
  - Used realistic estimates
  - Injected CAIV
- Affordability was placed at forefront of decision-making process

# Using Affordability to Patch A Budget Rip



## THE SET UP

- Congressional rescission
  - Hit current year & FYDP
- Successful tests, great performance--why a cut?
- Specific areas reduced
  - Test program scaled back
  - Production deliveries slipped to right
- What risks does this present to the program?

## THE REACTION

- Affordability was already built into ops
  - Used 1-N list and accompanying database for what-if scenarios
- Assess performance, capability trade-offs
  - Prime/Gov't team co-op
- Affordability assessmt
  - Domino effect of reduced tests, models/sims
- Systems engineers worked closely with costers, budgeteers

## THE OUTCOME

- Costers had full, open data and IPT access
  - Supported CAIV
  - Developed solid IGE's
- Affordability remained a priority within the program office
  - Won partial \$ reclama
  - Restored critical M&S
  - De-scoped support areas
  - Preserved flight tests
- New KPM: cost per kill





# Building Affordability Into The Raft

- Affordability is introduced when capability needs are identified
  - *“Program affordability is part of the Joint Capabilities Integration and Development System, which balances cost versus performance in establishing Key Performance Parameters”*  
(Defense Acquisition Guidebook, 2010)
- An analysis of alternatives (AoA) study assesses alternatives that could provide the desired capabilities identified in the Initial Capabilities Document
- *“The Materiel Solution Analysis can help determine the best path to the end-state solution, based on a balanced assessment of technology maturity and risk, and cost, performance, and schedule considerations.”*

(Defense Acquisition Guidebook, 2010)

## DoD Directive 5000.01

*“All participants in the acquisition system shall recognize the **reality of fiscal constraints**. They shall **view cost as an independent variable**, and the DoD Components shall plan programs based on realistic projections of the dollars and manpower likely to be available in future years. To the greatest extent possible, the Milestone Decision Authority (MDA) shall **identify the total costs of ownership**, and at a minimum, the **major drivers of total ownership costs**. The user shall **address affordability in establishing capability needs**.”*

## DoD Instruction

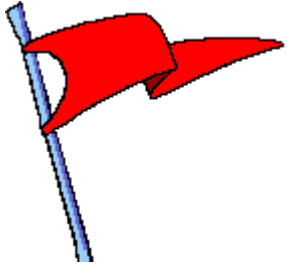
### 5000.02

*“An **affordability determination** results from the process of **addressing cost during the requirements process** and is included in each Capability Development Document (CDD) **using life-cycle cost** or, if available, **total ownership cost**.”*

# The Weapon Systems Acquisition Reform Act of 2009 (*Public Law 111-23*)

- **Must consider program cost, schedule, and performance--relative to current metrics, performance requirements, and baseline parameters**
- **Determine extent that program cost, schedule, and performance relative to established metrics is likely to result in:**
  - Timely delivery of warfighter capability consistent w/ level of resources expended
  - Superior value to alternative approaches that can meet the same requirement
- **Must consider the underlying cause or causes for shortcomings in cost, schedule, and performance**
  - unrealistic performance expectations
  - unrealistic baseline estimates
  - immature technologies or excessive manufacturing or integration risk
  - unanticipated design, engineering, manufacturing, or integration issues
  - poor performance by Gov't or contractor personnel responsible for program mgmt
  - changes in procurement quantities
  - inadequate funding, funding instability
- **Requires appropriate trade-offs among cost/schedule/perform objectives**
  - Program is affordable when considering the per-unit cost and total acquisition cost

However...



**Actual implementation of  
Affordability in weapon system  
acquisition may encounter some**

**choppy water**



# Voices of the Critics



- Dan Gouré, *Federal Times*, 1 Nov 2010:

*“Nowhere is the contradiction more profound than between the drive for affordability and the campaign to reduce reliance on contractors and insource work. Affordability means managing to cost and schedule, two things that government has never been good at but which are hallmarks of the American free enterprise system...The question is: If affordability is the overriding objective for acquisition reform, why is the Pentagon campaigning to insource work? Moreover, if the private sector provides the example of lowering costs and improving performance, why is OSD accepting claims by some DoD organizations that the government can do this work more cheaply?...Insourced work is not cheaper; it merely has to be done with less money.”*



# Voices of the Critics



- GAO report GAO-11-61R, 28 Oct 2010:

*“...(we) found a number of issues with contractor estimating and purchasing systems that may present challenges in the government’s ability to ensure subcontract price reasonableness...(and) government program and contracting officials in our review, for the most part, did not see the benefits of requesting the contractor’s make-or-buy plan to provide perspective on the degree of competition at the subsystem level or on the prime’s rationale for its make-or-buy decisions.”*

# Affordability – Navigational Beacons

## *Direction from USD (AT&L)*



- For ACAT-1D programs at Milestone A, programs must:
  - ***“...establish an affordability target to be treated by the Program Manager like a Key Performance Parameter. This affordability target (initially, average unit acquisition cost and average annual operating and support cost per unit) will be the basis for pre-MS B decision making and systems engineering tradeoff analysis.”***
- For Milestone B, he requests:
  - ***“...cost tradeoff curves or trade space around major affordability drivers (including KPPs when they are major cost drivers) to show how the program has established a cost-effective design point for these affordability drivers.”***
- The mandate also extends the reach of affordability beyond ACAT-1D programs
  - Requests a schedule to **“establish affordability as a requirement for ACAT II and below programs”**

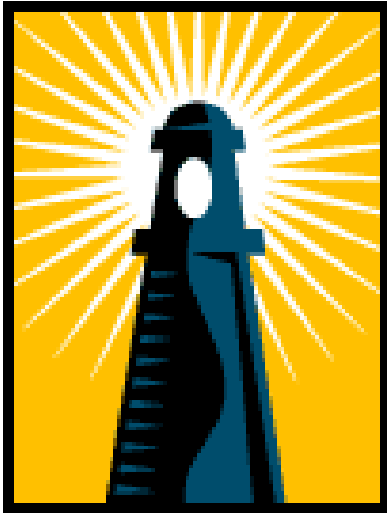
*USD (AT&L) memo, 3 Nov 2010*

# More Navigational Beacons

*(from the USD (AT&L) memo...)*

- Some **'game changers'** in this directive:

- Senior Government managers' **pay** and contractor **performance** is now tied to affordability
  - Establishes a formal link between the performance appraisals of the program executive officer and program manager to "should cost" targets for ACAT I, II, and III programs, and ties contractor performance to those targets as well
- Calls for greater emphasis and use of **market research** to grasp industry capabilities, understand pricing approach
- Decrees a **2% reduction** in FY11 of **single-bid competitive contracts**, with further reductions in the years following
- Sets **firm-fixed-price** contracts as the preferred contractual arrangement



USD (AT&L) memo, 3 Nov 2010

# Staying Aware of the Hazards

- Former Deputy USD (AT&L) James Finley<sup>1</sup>:
  - ***“The EVMS Trip Wires have provided excellent insight for trends and projections of planning execution in a variety of cost, schedule, and performance criteria on a monthly basis utilizing EVMS as a management tool for decision making.”***
- Daniel Zosh, *Defense AT&L Journal*<sup>2</sup>:
  - ***“EVM allows the government to identify risk and maximize efficiency to reduce that risk so a technically superior system can be produced for as little cost and in as little time as possible.”***

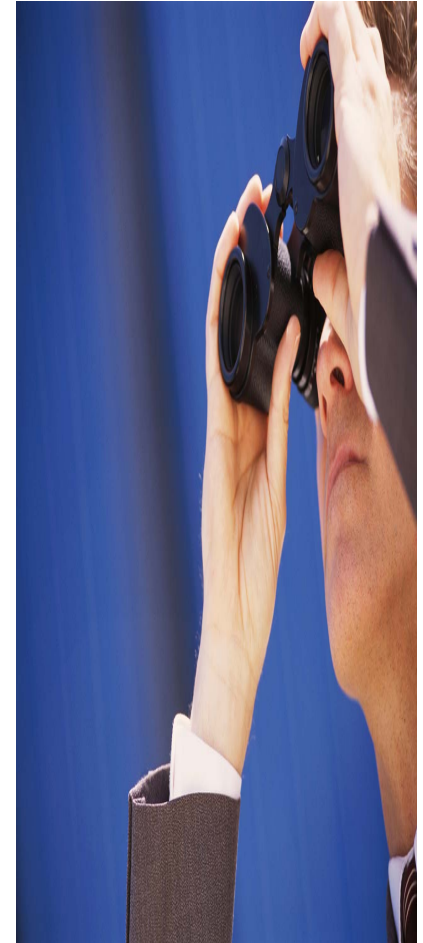


<sup>1</sup> Finley testimony to Subcommittee on Federal Financial Management, Government Information, Federal Services and International Security, 25 Sep 2008

<sup>2</sup> Zosh article, “Advancing EVM and Government Contracting Efficiencies,” Vol XXXVIII, No.5

# Staying Aware of the Hazards (con't)

- **Current USD (AT&L) Ashton Carter<sup>1</sup>:**
  - Urges use of appropriate analytical tools to *“...identify the best possible use of available DoD and industry resources at the system, subsystem, and component levels by analyzing all alternatives available to achieve the desired performance outcomes. Additionally, resources required to implement the preferred alternative should be assessed with associated risks. Sensitivity analyses should also be conducted.”*
- **The Program Managers Body Of Knowledge<sup>2</sup>:**
  - Reminds cost estimators, financial analysts, and other SPO employees alike of the importance of affordability stating *“With the increasing DoD emphasis on system affordability through Cost as an Independent Variable (CAIV), cost (both manufacturing and support) must be considered as a design and program planning driver throughout the acquisition process.”*



<sup>1</sup> USD (AT&L) memo, 6 Oct 2010

<sup>2</sup> PMBOK Guide, June 2003



# Use the right Affordability beacons to go from this...



... To this in your acquisition program!





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