



Affordability Analysis: Developing the Process

10-12 March 2014 | Lockheed Martin Global Vision Center, Arlington, VA



Unclassified

MORS Affordability Analysis Community of Practice

Affordability Analysis: Developing the Process Outbrief

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Promoting National Security Since 1919



Date: 2 April 2014

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Intent: We are Trying To Make This Easy

Things You Need to Know to Buy a House

- **Fraction of Budget allocated to house**
- **Need for house**
- **Payment Terms**
- **Willingness to give up other spending**

*Things You Need to Know for Affordability**

- **Affirmation that Value Proposition Exists**
- **Establishment of needs and priorities**
- **Basis of Terms of Payment**
- **Holistic Portfolio Choices offered**



- **Background**
- **Meeting Overview**
- **Some Preliminary Insights**
- **Next Steps**



Leading to Affordability Analysis

2009



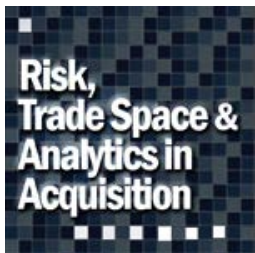
Congress passes the Weapon System Acquisition Reform Act (**WSARA**) to *improve the way DoD contracts and purchases major weapons systems*. The law established the Office of Cost Assessment and Program Evaluation (CAPE) and emplaced reforms that were expected to save billions of dollars.

2010



As the WSARA formally demanded more fidelity and rigor in acquisition analysis, *leaders in DoD asked MORS to engage the Acquisition and Analysis Communities to share and develop a set of best practices* which address risk assessment and trade space analysis in support of acquisition.

2011



In Sept. 2011, MORS held the workshop *“Risk, Trade Space & Analytics in Acquisition,”* to determine and share a set of best practices for those significant analytic challenges that arise during the acquisition process. *One significant conclusion from that workshop was that “affordability analysis” was poorly defined across the community.* Leaders in DoD asked MORS for help with definitions and procedures.



MORS and Affordability Analysis

2012



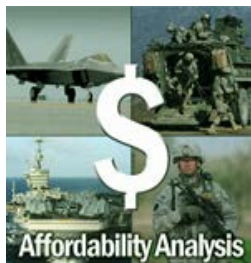
In response to those demands, in October of 2012 MORS held a follow-on workshop, “**Affordability Analysis: How Do We Do It?**” Participants defined differences in methods for affordability analysis and cost analysis, and the workshop confirmed that **the topic is sufficiently complex and important to demand more regular attention.** Leaders in DoD again asked MORS for help.

2013



In February 2013, **MORS established an Affordability Analysis Community of Practice** to meet regularly, complete unfinished items from the workshop, and build up the body of knowledge around affordability analysis with their “Affordability Research Document.” The Affordability CoP determined that it would be **valuable to use a Lean Six Sigma Value Stream Mapping approach to further develop the process.**

2014



Now in March 2014, we are conducting the workshop, “**Affordability Analysis: Developing the Process,**” the next step in serving the DoD Acquisition and Analysis Communities. Here we will use rigorous and professionally-led methods to develop the underpinnings of a “How To” manual, or guidebook, for Affordability Analysis.



Affordability Analysis Workshop Next Steps

√ *Form a team (completed Feb 2013: AA CoP)*

√ *Continue researching items not able to be researched during 3 ½ day workshop and Leadership Outbriefs (completed Dec 2013: Affordability Research Document)*

- **Develop an Affordability Analysis “How To” Manual / Guidebook / Process**

- **Pilot the “How To” Manual / Guidebook / Process on a couple of projects**

Final
draft
Nov
2014

Selection
in
process



“Affordability Research Document” (ARD) Overview

1.0 Intro: The Affordability Challenge

Definitions, Requirements Rationalization and Opportunity Cost, References

2.0 Decisions Supported by Affordability Analysis at Different Levels

Organizational Layers, Scopes, Audiences

3.0 Exit Criteria

Sufficiency and Quality of any Affordability Analysis

4.0 Framework for the Affordability Analysis “How-To” Manual

Vital Questions, 4-Phased Process, Observations

5.0 Recommended Next Steps

Leverage Key Principles, Develop Potential Appendixes, Another Workshop

Appendices: References and Visualization Ideas



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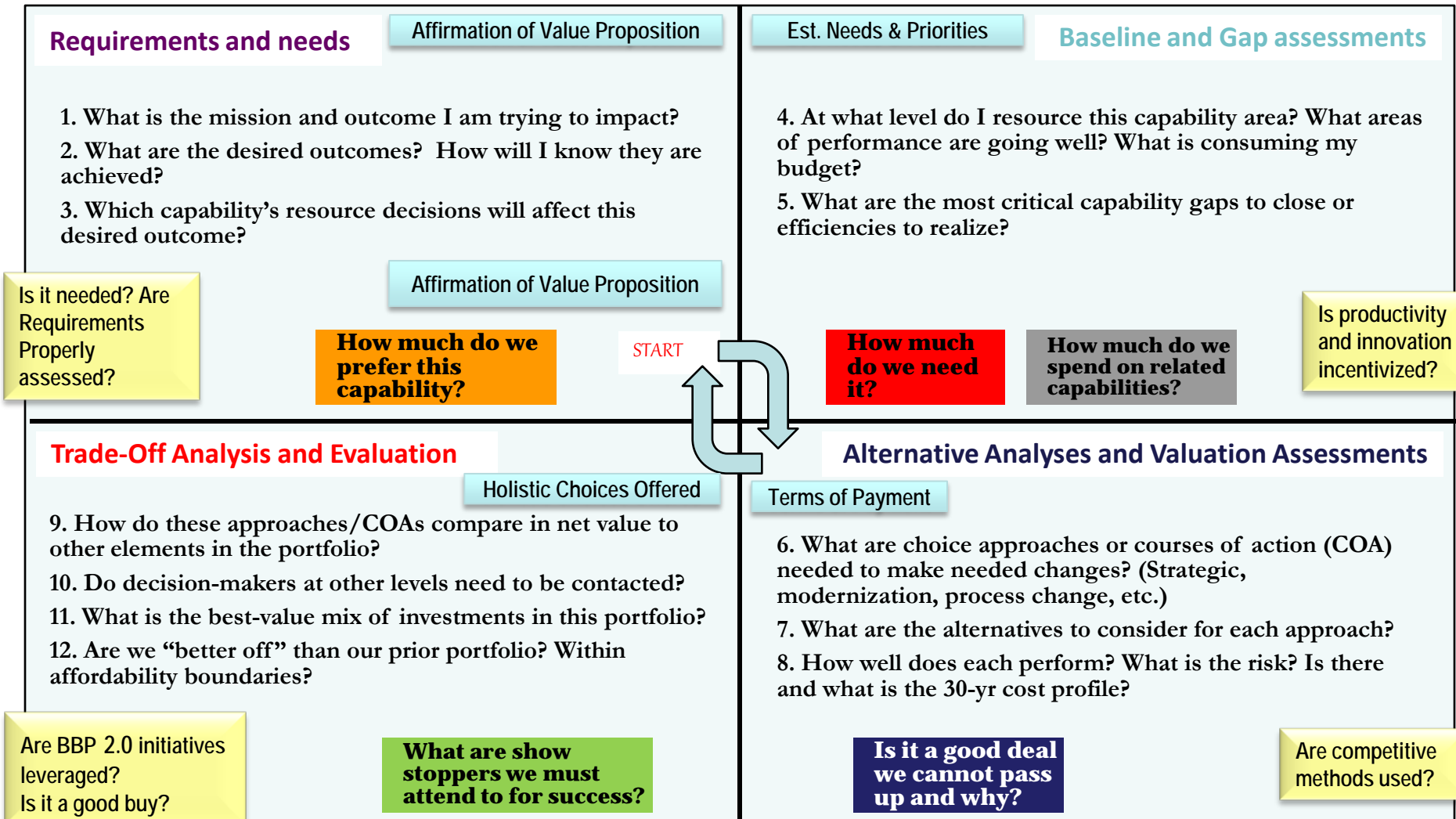


Meeting Overview

- Conducted 10-12 March 2014 at Lockheed Martin's Global Vision Center in Crystal City, VA
- 45 total attendees
 - 9 government, 24 industry, 1 academia, 4 FFRDC & 3 UARC
 - 10 WG 1, 8 WG 2, 10 WG 3, 13 WG 4 & 8 SG (4 WG / 4 Roam)
 - Industry Marketing Partners: NDIA SE Division, INCOSE, and Lean 6 Consulting
- First MORS CoP hosted meeting & follow-on to a previous MORS Workshop
- First MORS Lean Six Sigma (LSS) combined event with a LSS Black Belt & Green Belt in each Working Group



The Affordability Analysis Framework: 4 Phases with Driving and “Vital” Questions





AA CoP ARD Framework

- 4 phases in ARD Affordability Analysis Framework
 - 1 phase per MORS Working Group
- Each phase has 2-4 “steps / questions”
- Each “step / question” have 6 sub-questions
 - 1) What are the driving questions?
 - 2) What are the data or inputs needed?
 - 3) What are the decisions supported?
 - 4) What is the process(es) necessary to complete this step?
 - 5) What is the exit criteria for sufficiency?
 - 6) What is the exit criteria for quality?



Lean Six Sigma Value Stream Map Definition

- Value Stream Map (VSM)
 - A Value Stream transforms information into a final product for delivery to the customer.
 - The value stream is all activities that provide value or are required, but doesn't include the non-value added activities.
 - The goal of a LSS VSM event is to identify these value-added and required activities and then map these activities into an organized process.
- “Affordability Analysis: Developing the Process”
 - MORS used a LSS VSM Event to gather information

NOTE: Will be collecting data that will be used by the AA CoP to develop the process later.



Additional LSS Activities

- Developed Supplier-Inputs-Process-Outputs-Customer (SIPOC) Charts
- Process Mapping
- Get-to-Excellence (GTE) Plan: Recommend inputs to the follow-on actions for the AA CoP
- PICK Chart: Prioritize the recommended inputs in GTE Plan for each WG/Activity



AA CoP Meeting Goals

- Manual / Guidebook / Process won't be complete
- The meeting goals were:
 - To “kick-off” the 3rd next step in a face-to-face environment.
 - What could take the AA CoP a couple of months virtually, could get the raw information in the 2 ½ days.
 - To get as much raw information as possible during the meeting to develop the manual / guidebook / process *after* the meeting.
 - Work to be done by the AA CoP

Goals were exceeded!



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“How To” Manual → Thought Roadmap → “BIG A” **AFFORDABILITY ANALYSIS** *Best Practices and Lessons Learned for Affordability Analysis*

- **Yes:** Thinking, analytical construct that *quickly* aids DoD (or any agency / level) in making good decisions with imperfect data
- **No:** Create long lists of tasks for PMs and budgeters that feel like they duplicate or add to the as-is PPBE

Characteristics:

- Small, simple, but targeted
- Does not require extensive data—leverages / integrates existing
- Sub-questions to approximate needed concepts
 - “Affordability Analysis Wizard” that guides the user through the analysis based on a question / response approach.

Challenge:

- More value than “be transparent, coordinate, think big”
- Must show immediate and intuitive value



Preliminary Insight: Any Affordability Analysis Process Must Add Value to What Exists

\$\$ Added Value? \$\$

- Ability to quickly scope mission or capability improvements that will determine affordability
 - Frank Kendall: recognize early the key issues and no longer start programs that we can't finish
- Focused articulation of affordability value propositions and estimated parametric understanding of impacts
- Data synthesis: better process transparency and issues challenged by data and process transparency and PPBE**
- Purpose: better cost visibility, and better visibility of "calculated risk"
- Cost development
- Visual affordability value propositions within affected portfolios
- Tracking preservation of cutback rationale(s)
- Cross-service capability trades made to preserve operational value and are more affordable, instead of top level trades (lowering TOAs) implemented in ways that severely decrement operational value

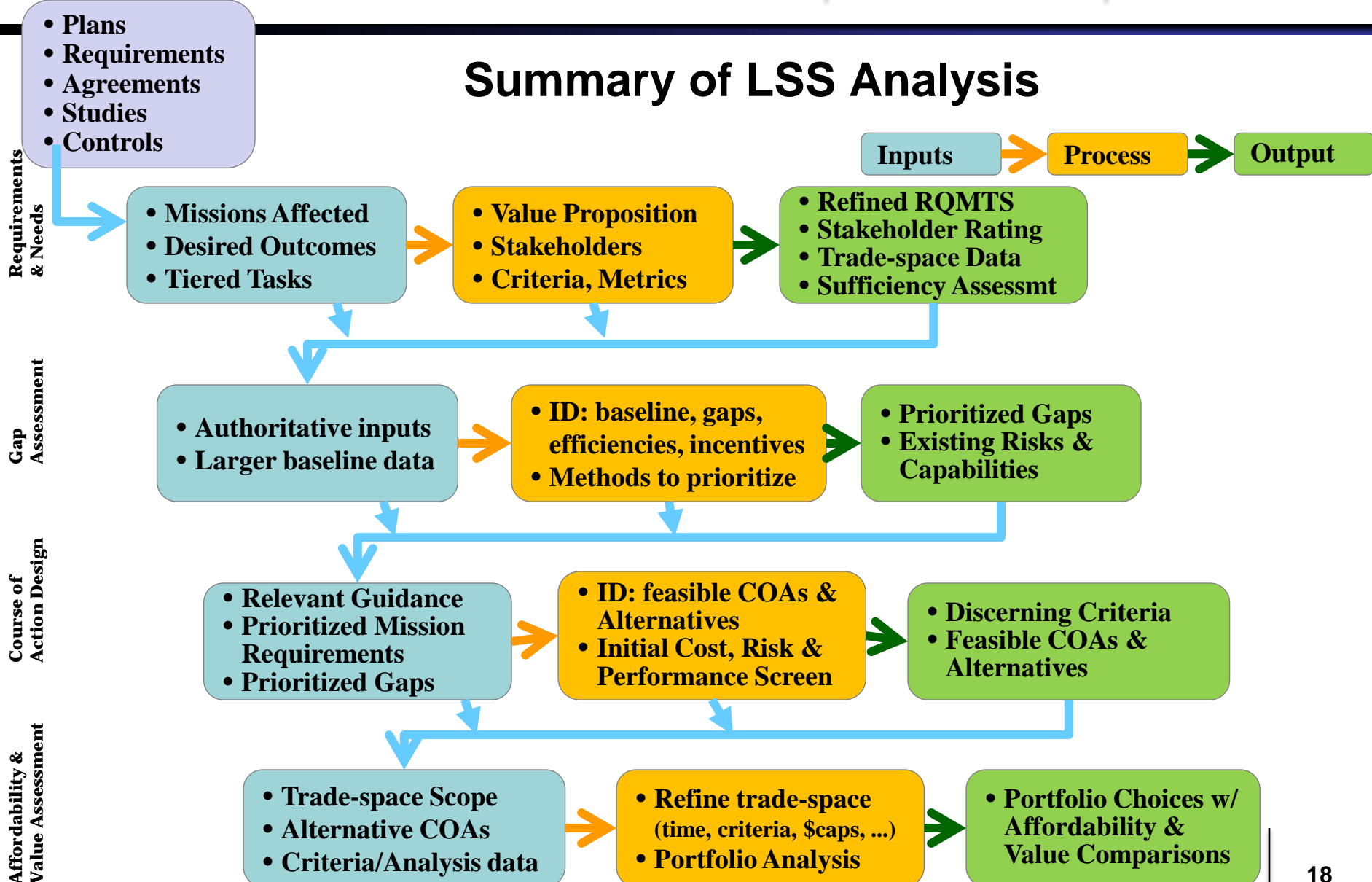
All of these are lacking in current processes and any would be a focus of an AA.
Do not need all AA outcomes to have value.

*Mike Kelley, "Kendall says missile defense to be protected despite possible sequestration," Aug 15, 2012, AL.com

**Nathaniel H. Sledge, Jr. "Defense Spending: Today's 'Broken' Budgeting Process Must Change," November 2010.



Summary of LSS Analysis





While it Looks Like a Process, it can be “entered” in alternate places – good for “BIG A”

Where would one enter the AA process? Do we need to do it all?

YES. All portions must be referenced because all questions must be up to date!

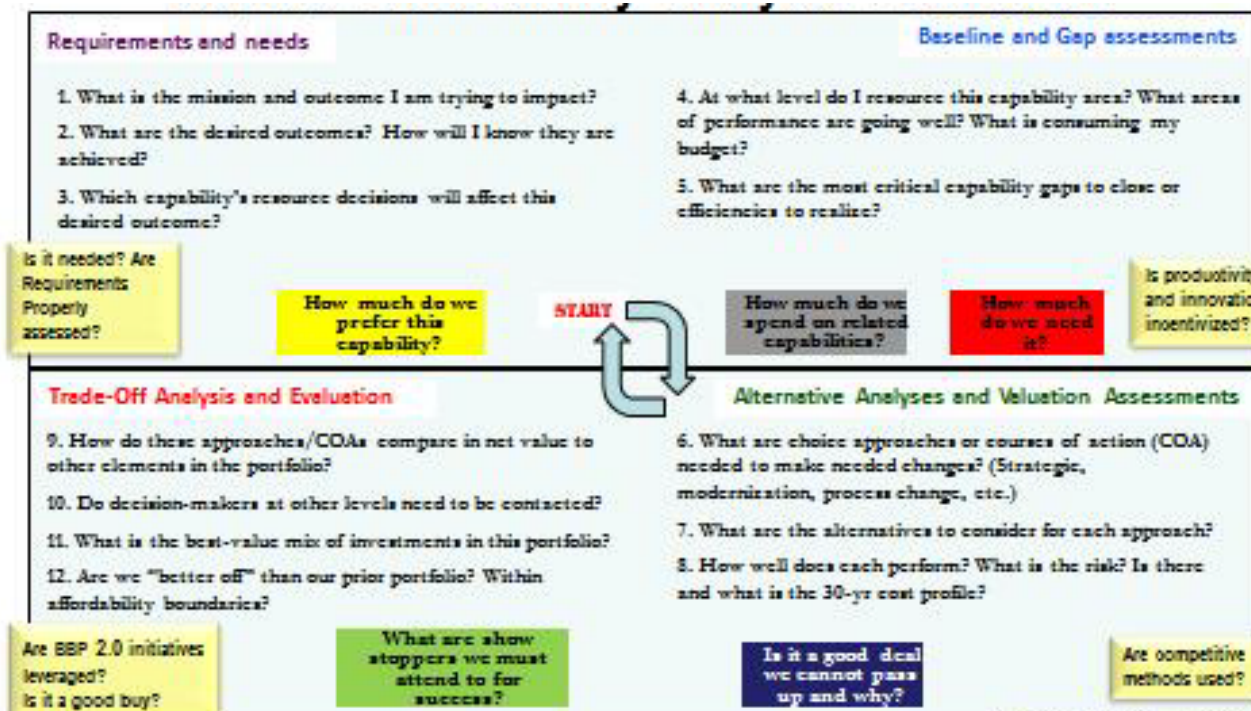
If the “item” begging the Affordability Analysis question is:

New:
Start in Phase I; complete I-IV.

New Gap or shortfall:
Start in Phase II; reference I, complete II-IV.

New solution or execution type exists:
Start in Phase IV; reference I-III; complete IV.

New Approach Needed/avail:
Start in Phase III; reference I/II, complete III-IV.





Preliminary Insight: Components are Responsible for Affordable Portfolios but Others are Involved

How does one enter the AA process?

What is the AA question about?
Who would be the decision-maker?

Question is about the affordability of a:

“Big A”

Mission need or operation

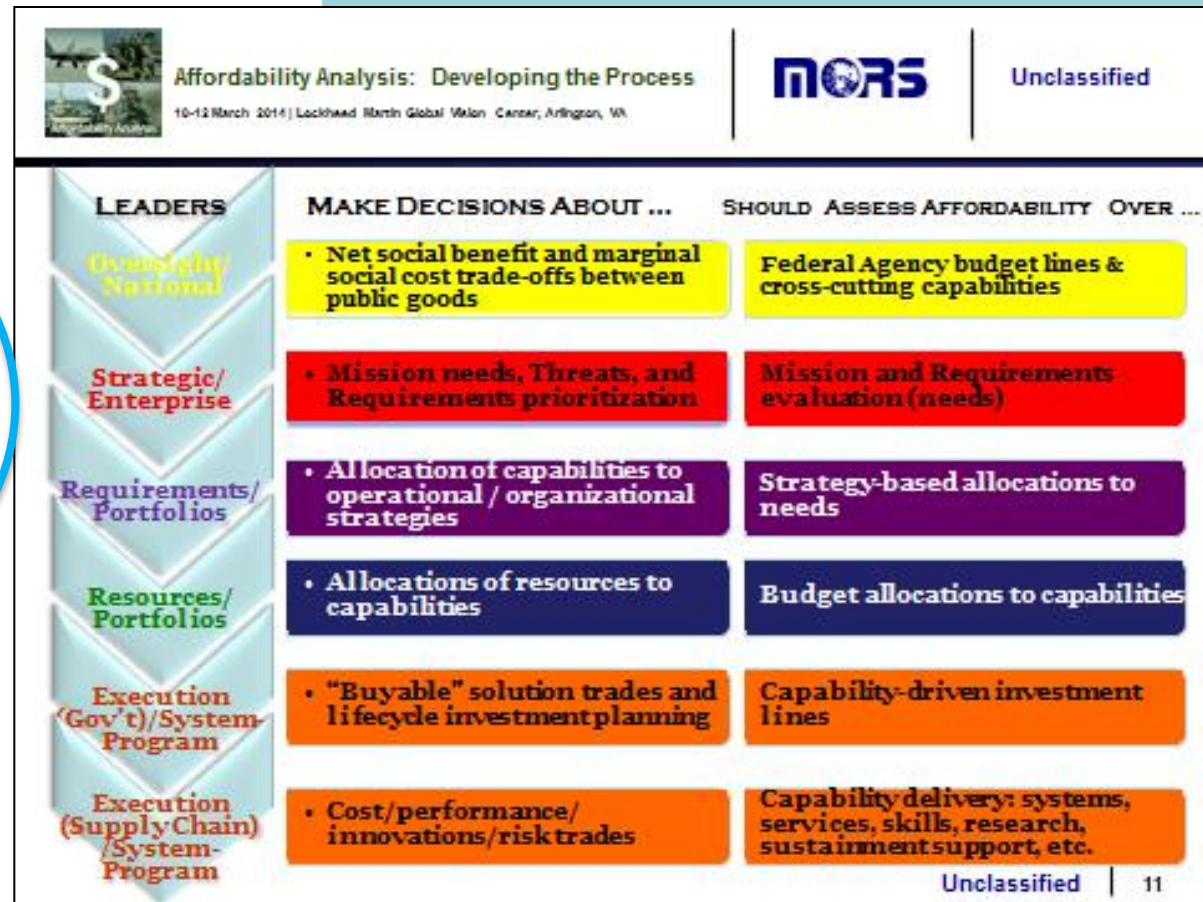
A function or capability

A system of systems

A program

Which Components should participate?

Purple or Blue is “touched” in every instance, but all need to think about it!





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"Pilot" Nomination Team

- Oct-Nov: Develop a "Pilot" Nomination Plan, Select Pilots
- Dec: Pilots Selected
- CY 2015: Pilots conducted

"Big A" AA Document Review Cycle

- ✓ October: Document Finalization
 - November: AA CoP Chair provide Rev 5 to AA CoP Proponents (ASD(A), OSD(ATL) & J8) for their comments and recommendations
 - December: AA CoP Chair (Kirk) publish "final" process document



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Back-Ups



Attending Organizations

- **AF Headquarters**
- **Booz Allen Hamilton**
- **Bullhead Solutions**
- **CAA**
- **HQ AFMC/A5CE**
- **HQMC, P&R, Programs, Analysis and Evaluation**
- **IDA**
- **J8, Joint Requirements Assessment Division**
- **JHU/APL**
- **Johns Hopkins University - Applied Physics Laboratory**
- **Lean 6 Consulting**
- **Lockheed Martin**

- **Lockheed Martin Aeronautics**
- **Lockheed Martin Corporate Engineering**
- **Lockheed Martin Missiles & Fire Control**
- **Lockheed Martin NCID**
- **Northrop Grumman Corporation**
- **Northrop Grumman Defense Systems Division**
- **OUSD(AT&L)**
- **PRICE Systems LLC**
- **SPA**
- **The Boeing Company**
- **The MITRE Corporation**
- **University of Southern California**



Background/Research Findings

- 1. Make sure definitions are clear**
- 2. Highlight rationalizing requirements and opportunity costs as two new factors critical to affordability thinking**
- 3. Differentiate between decision-makers and the trade-space over which they are considering affordability issues—everyone cannot be the strategist; not all execute capability**
- 4. Leverage/upgrade institutional analyses/processes; see what information they need to cohesively address affordability**
- 5. Ensure Sufficiency and Quality are included as exit criteria for the affordability analyses; “any analysis” will not do**
- 6. Use a framework for affordability thinking, driven by common questions and applicable to any decision layer**
- 7. Leverage best practices to overcome barriers and keep process relevant and useful**
- 8. Consider issues that will make a How-To Manual Difficult**