



Affordability Analysis

An Update from the MORS Affordability Analysis Community of Practice

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AFFORDABILITY ANALYSIS:

An Update from the Military Operations Research Society Affordability Analysis Community of Practice (MORS AA CoP)

Update to NDIA Systems Engineering Division
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Overview

- **History of MORS and Affordability Analysis**
- **Current Status**
- **Request Support from NDIA SE Division**



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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.

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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.

- **Leadership and Other Briefs**

- ASD(Acq), OSD(ATL), J8, MCCDC, WINFORMS, MORS Industry Day

- **Recommended Next Steps**

- 1) Form a team to continue working affordability analysis
- 2) Complete the research from the workshop and answer the questions from the Leadership
- 3) Develop a “how to” manual / guide / process
- 4) “Test” the process with pilot projects



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MORS and Affordability Analysis

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.”

- **Recommended Next Steps Completed**

- 1) Form a team to continue working affordability analysis
 - ✓ Established the MORS Affordability Analysis CoP in February 2013
 - ✓ <http://www.mors.org/Communities/Affordability-Analysis>
- 2) Complete the research from the workshop and answer the questions from the Leadership
 - ✓ Developed the MORS AA CoP “Affordability Research Document”
 - ✓ Posted on MORS Website in December 2013



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MORS Affordability Analysis: Organizations

- **Proponents**

- ASD(Acquisition), OSD(ATL) & J8

- **Industry Marketing Partners**

- INCOSE – Garry Roedler, Joe Bobinis & Taki Turner
- NDIA SE Division – Frank Serna, Steve Henry & Geoff Draper
- ICEAA – Dan Nussbaum

- **Leadership Team**

- USAF AFMC HQ AFMC / A5CE – Harry Conley & Mike Eberle
- USA TRADOC Analysis Center – Frank Decker & Matt Boetig
- USMC HQMC P&R PA&E – Hal Swyers & Randi Van Nyhuis

- **Core Team**

- MITRE, Price Systems & Lockheed Martin





MORS Affordability Analysis: Other Organizations

- **Other Government**

- COCOMs: CENTCOM, EUCOM, NORTHCOM, PACOM & STRATCOM
- International: UK MoD, Australia DSTO
- NavAir, TRAC-WSMR, HQMC C4, USA Corps of Engineers

- **Industry**

- Boeing, Northrop Grumman, Lockheed Martin
- Accenture, Textron Systems, Technomics, Analytical Graphics, SAS

- **Other**

- Academia: DAU & NPS
- FARC: JHU/APL
- FFRDC: MITRE





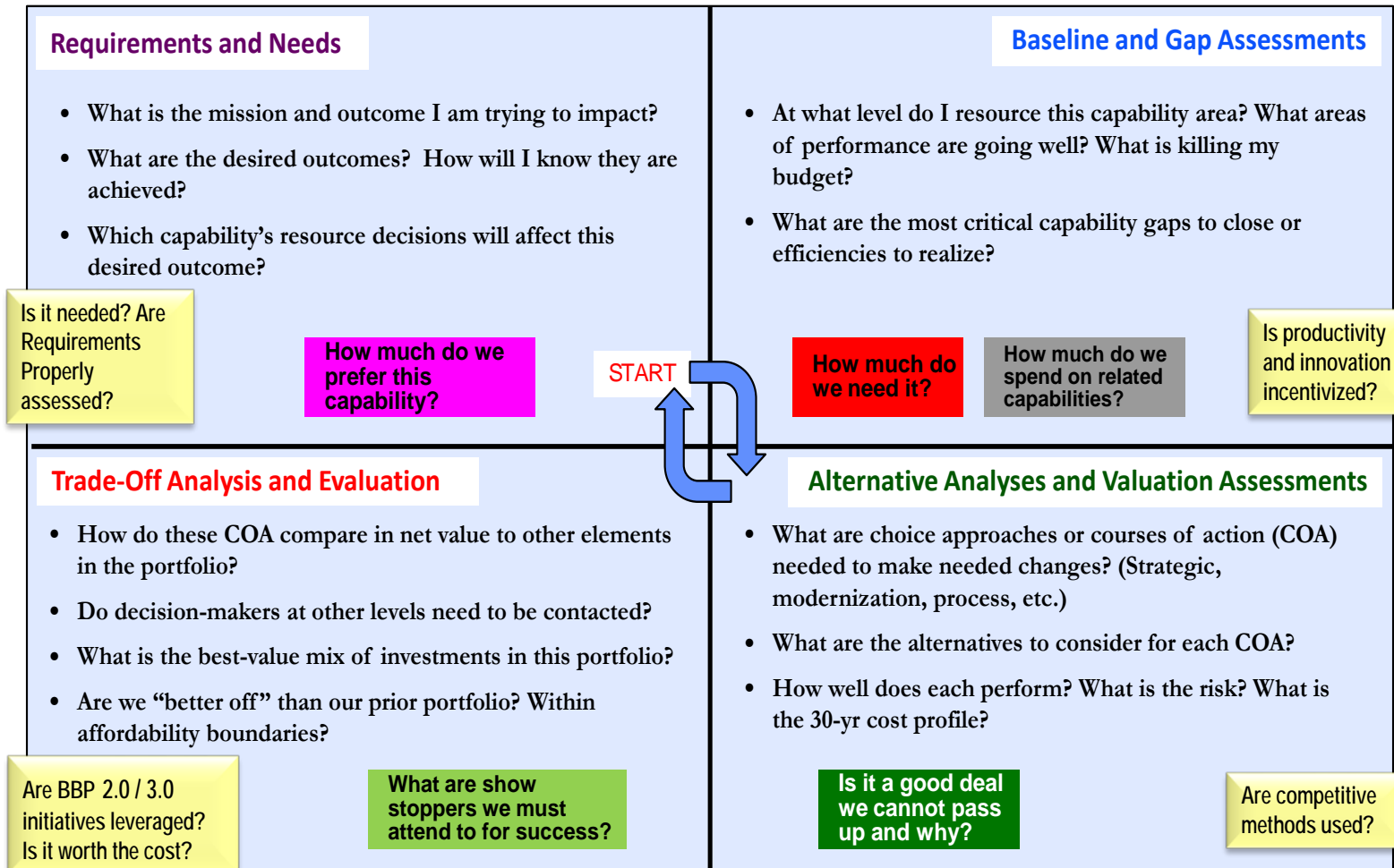
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Affordability Analysis Framework





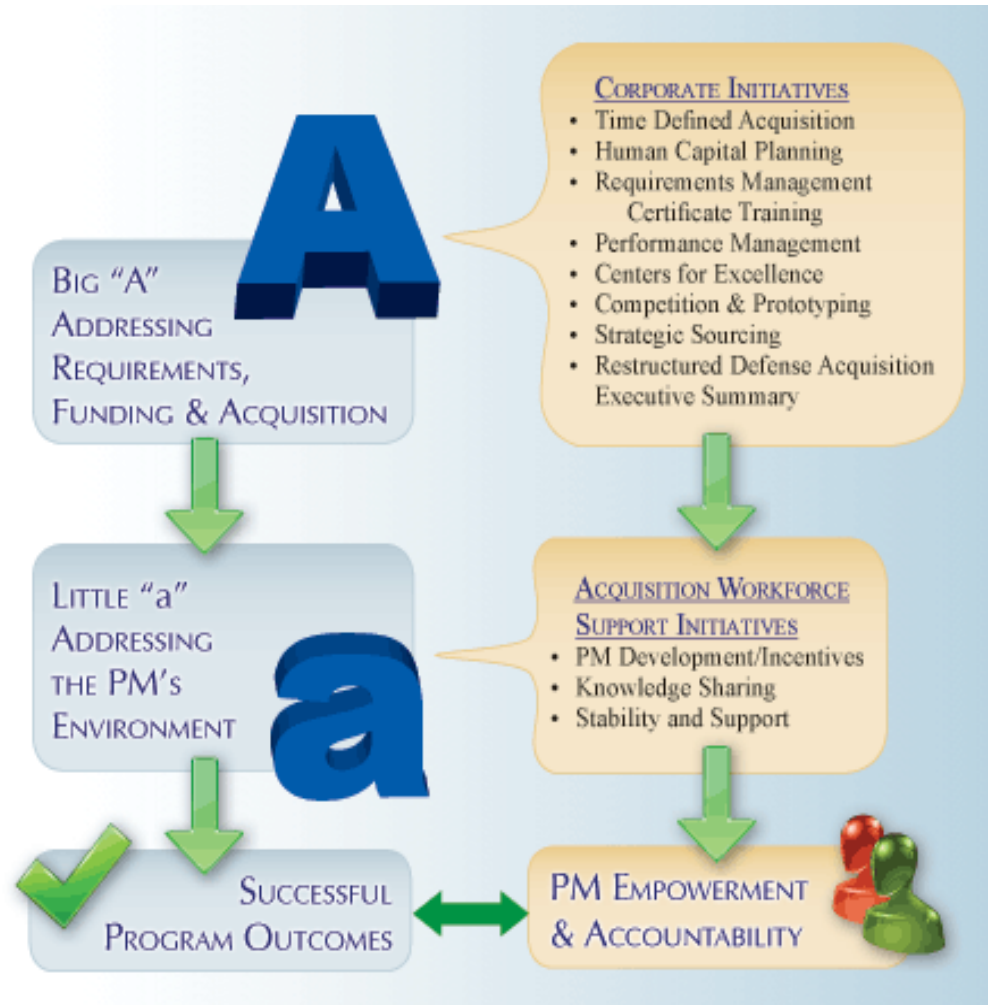
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“Big A” & “little a” Affordability





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Current Definitions: Affordability

- **Affordability**
 - The degree to which the resources being allocated to a capability relative to other uses of those resources reflects (i) the importance, urgency, and satisfaction of mission, strategic investment, and organizational needs, and (ii) a prudent balance of performance, cost, and schedule constraints consistent with the time phased availability (technical, market, and fiscal) of budgeted resources.
- **Affordability Analysis**
 - A process and assessment that supports resource allocation decision-making. It identifies and quantifies the performance expectations of stakeholders, assigns value to those expectations, and measures the life cycle cost of alternatives relative to both opportunity costs and resourcing actions or plans.
- **Affordability Analysis Outcome**
 - Practically, affordability analyses must substantiate resource plans, given a mission scope, budget scope, while taking advantage of “good buys” and available offsets. Culturally, rewarding the practice and use of affordability analyses should change the conversations of decisions-makers, enabling them to deliver portfolio outcomes that are more effective and efficient while staying within and informing budget boundaries.



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MORS and Affordability Analysis

2014



In March 2014, MORS conducted the workshop, ***“Affordability Analysis: Developing the Process,”*** the next step in serving the DoD Acquisition and Analysis Communities. Here MORS used rigorous and professionally-led methods to develop the underpinnings of a “How To” manual, or guidebook, for Affordability Analysis.

1st Combined MORS Workshop & Lean Six Sigma Value Stream Mapping Event

- Each Affordability Analysis Activity was a working group

3) Recommended Next Step (“How to” Manual / Guide) In Progress

- Draft-Rev 3: MORS AA CoP Core Team, Leadership Team & Industry Marketing Partners
- Rev 4: All Oct 2012 & Mar 2014 MORS Workshop attendees and all MORS AA CoP members
- Rev 5: Sent to Marine Corps Tech Editor for review
- Rev 6: Jan 2015 – Incorporated Tech Editor comments
- Rev 7: Sent to Proponents, Industry Marketing Partners & Leadership Team
- Rev 8A – Incorporated Rev 7 comments



Better Buying Power (BBP) Memos

- **Better Buying Power 2.0 Memo**
 - Recommend reading before October 2012 workshop
 - DAU provided an overview brief during Oct '12 workshop kick-off
- **Affordability Research Document**
 - BBP 2.0 used as a foundation throughout the document
- **Better Buying Power 3.0 Memo**
 - Included in Appendix C3, "Selected References & Tools"
 - Referenced and all initiatives listed
 - Affordability may not be cost cutting or improved program management but rather "innovation and technical excellence."
 - Innovation and affordability are an intertwined critical issue for defense.



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Current Status: MORS Affordability Analysis

2014-
2015



Using the foundation from the “**Affordability Analysis: Developing a Process**” workshop, the MORS CoP developed a process document titled “**BIG A**” AFFORDABILITY ANALYSIS: *Analytical Considerations for Conducting “Big A” Affordability Analysis*. Contributors included our Industry Marketing Partners (INCOSE, NDIA SE Division & ICEAA), the four Services, and others across government and industry.

2015



In February 2015, the MORS CoP solicited “pilot” projects across government and industry to *test* their process document. The feedback received will be used to update the document accordingly. The ultimate goal is to post the updated, final document on the MORS website for use across government and industry.

- **Recommended Next Steps Status**

- 3) Develop a “how to” manual / guide / process
 - Revision 8A ready for testing
- 4) “Test” the process with pilot projects
 - 1 Government & 3 Industry projects

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“Big A” Affordability Analysis Main Body

- **Executive Summary**
- **Sec 1: Background & Introduction**
 - Affordability Challenges
 - Affordability Definitions
 - Purpose
 - Value Proposition
- **Sec 2: Affordability Analysis Activities**
 - Process Overview
 - Requirements & Needs Activity
 - Baseline & Gap Assessments Activity
 - Alternative Analyses & Valuation Assessments Activity
 - Trade-Off Analysis & Evaluation Activity
 - Affordability Analysis Activities across the Acquisition Life Cycle

Each Activity:

Overview, Inputs, Sub-Activities, Exit Criteria, and Outputs



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“Big A” Affordability Analysis Appendices #1

- **A – MORS Background**
 - MORS & Affordability Analysis
- **B – Checklists**
 - Each of the 4 AA Activities
- **C – Consideration When Starting**
 - Roles & Responsibilities (Oct ‘12 WG 1 Table)
 - Potential Metrics & Analysis (Oct ‘12 WG 3 Table)
 - Selected References & Tools
 - Sustainment Quad Chart
- **D – Other Community Best Practices & Lessons Learned**
 - Acquisition Life Cycle
 - Roles & Responsibilities
 - Initial Affordability Assessment
 - Opportunity Costs
 - Affordability Targets
 - Assumptions & Key Parameters
 - Architecturally Driven Analytics
 - Perishable Attribute, Agility
 - Risk & Measurement
 - Evolutionary Acquisition
 - Portfolio & Knowledge Mgmt



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“Big A” Affordability Analysis Appendices #2

- **E – Other Considerations**
 - Decisions at Different Levels
 - Useful Affordability Analysis
 - Benefits, Sufficiency & Quality
 - Visualization
 - Risk & Uncertainty
- **F – References**
 - Acronyms
 - Glossary
 - Organizational Contributions
 - AA CoP Members
 - March 2014 Workshop Attendees
 - References
 - End Notes



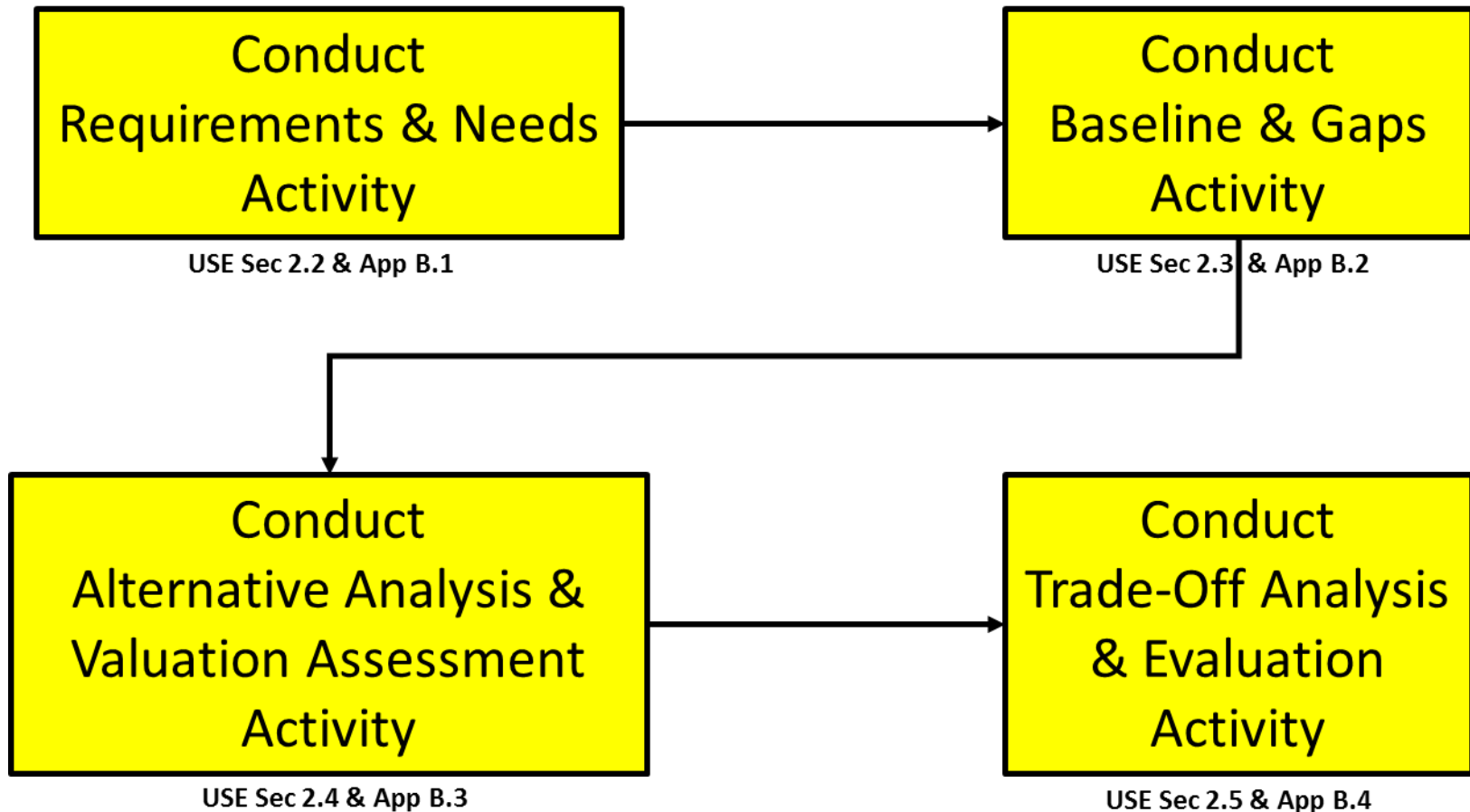
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Affordability Analysis Activities Overview



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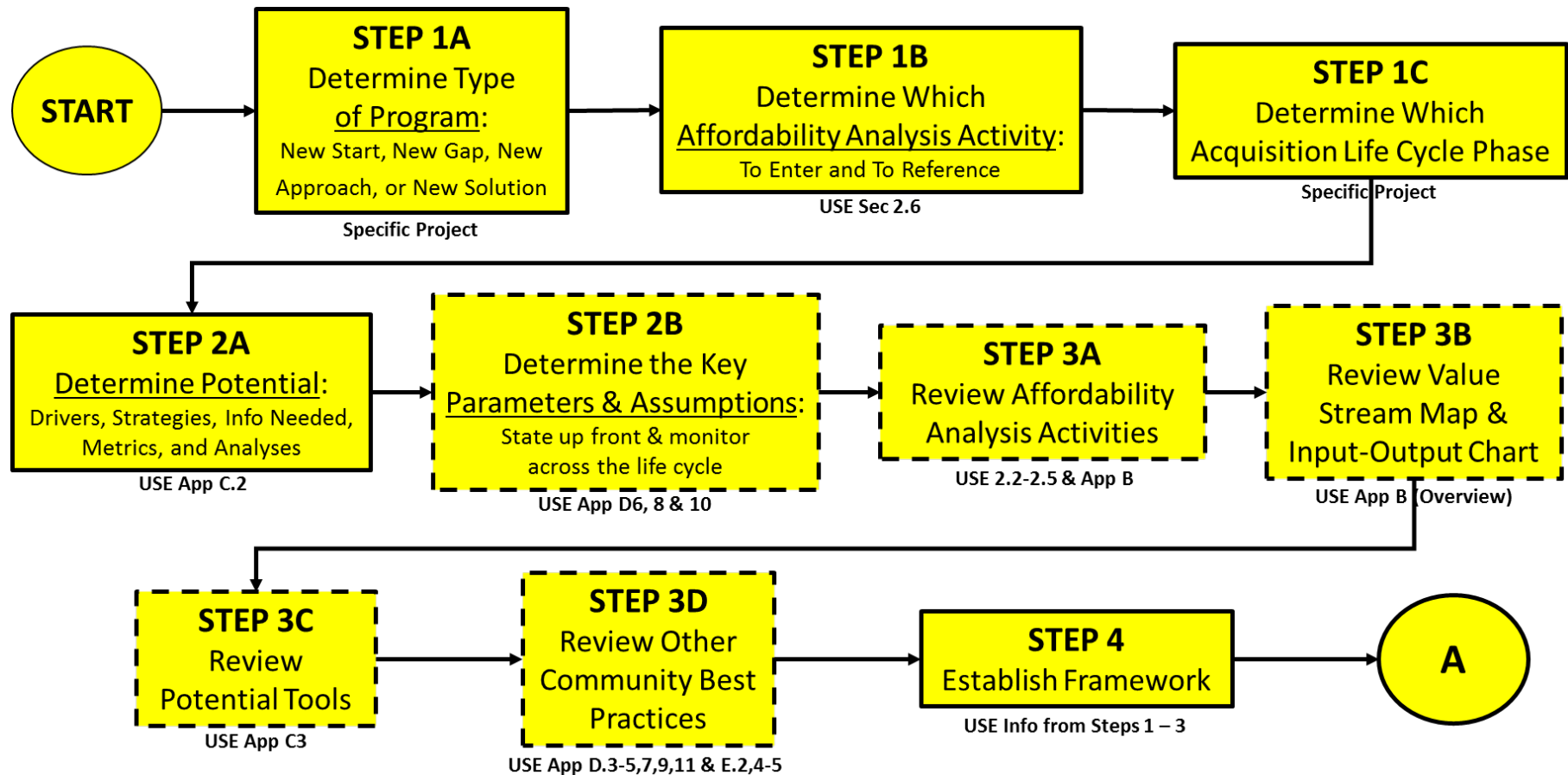
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Affordability Analysis: Preparation Considerations





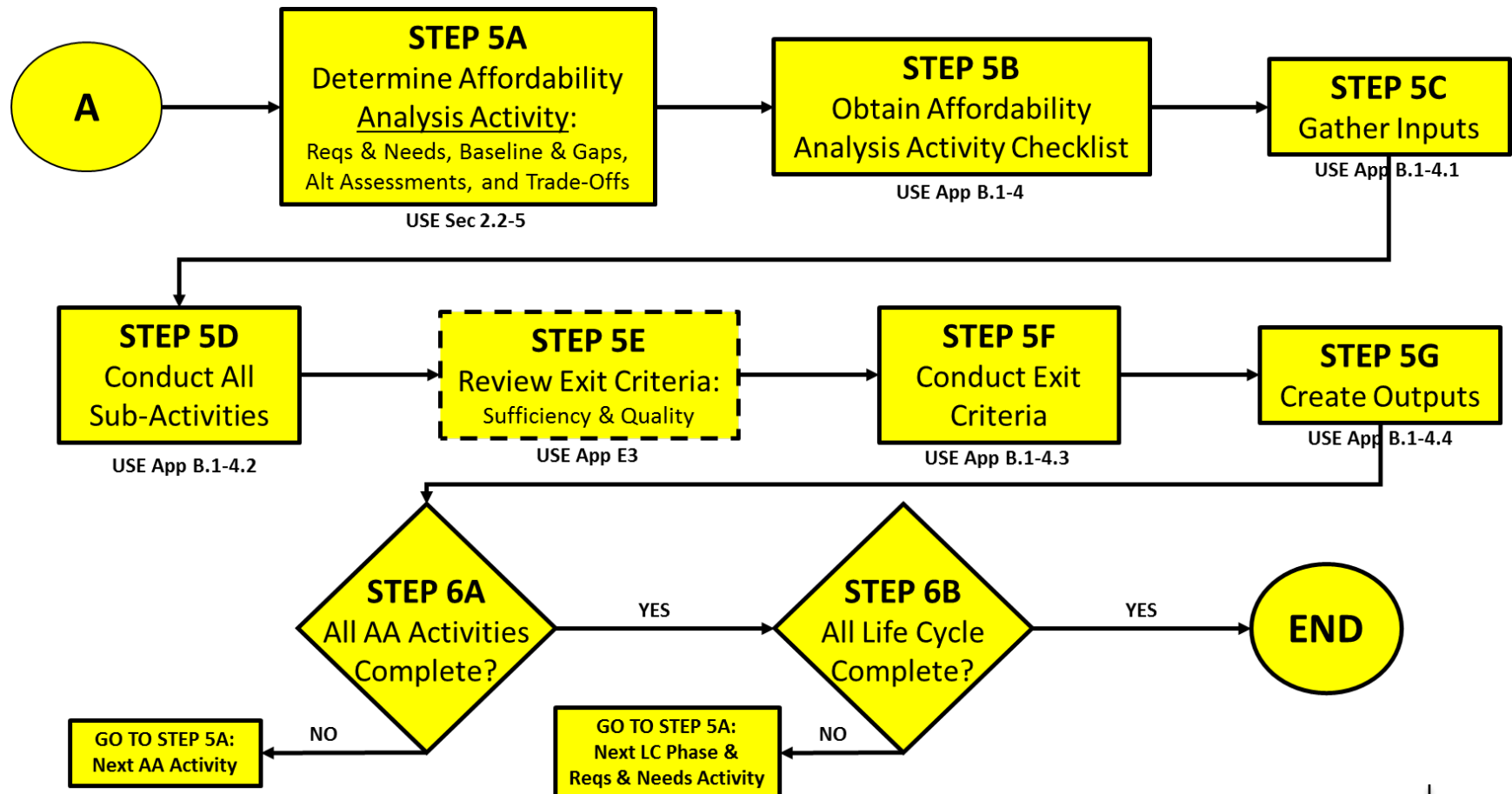
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Affordability Analysis: Execution Considerations





Other Community Best Practices & Lessons Learned

- Appendix D describes where we are today and introduces some proven best practices and lessons learned used by other communities to consider also using when applying the “Big A” affordability analysis activities in Section 2.
 - Economic analyses, system engineering process, risk analyses, project management, etc.
- Contributors believed that when these best practices and lessons learned were applied to their programs, they were “more affordable” (per their organization’s definitions).
- However, they also believed these concepts were not applied consistently across their organizations, and they therefore recommended including these concepts in the MORS discussion.



“Pilot” Projects

- MORS is preparing to start “piloting” their MORS *“Big A” Affordability Analysis Process Guide* with government and industry projects.
- The objectives of the pilot are to understand whether the MORS document provides value for conducting affordability analysis, i.e.,:
 - To what extent does the MORS Guide provide value for conducting affordability analysis?
 - Do the documents provide accurate and adequate guidance for gathering information and conducting phased affordability analytics to a user?
 - Are the documents supportive and complementary to all “little a” processes and all project types, no matter where the project is in the acquisition lifecycle?
 - Are all activity phases in Section 2 from the MORS document and the MORS Appendix B Consideration Checklists understandable, sensible, and assist in the project’s planning and management?
 - Do the affordability analytics ease communications between decisions layers?



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MORS Affordability Analysis Course

- **Title:**
 - *Developing a “Big A” Affordability Analysis Capability – A Familiarization and an Overview*
- **When & Where:**
 - 83rd MORS Symposium, Monday afternoon June 22nd
 - DoD Mark Center / Hilton Mark Center, Alexandria, VA
 - Free to MORS members attending 83rd MORSS; \$100 others
- **Purpose & Who Should Attend:**
 - To provide situational awareness and an overview on the government / industry affordability analysis process that was developed by MORS and is currently being tested across government and industry.
 - For all individuals involved in any affordability analysis, including operations analysts, systems engineers, cost analysts, project managers, program managers, economic analysts, etc.



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Requests for NDIA SE Division

- Review Revision 8A of the MORS *“Big A” Affordability Analysis Process Guide*
- Recommend pilot projects MORS could “test” their process guide
- Register for the 83rd MORSS and attend the affordability analysis course

Contact the MORS AA CoP Chair:

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QUESTIONS?



Guidelines / Factors to Include

- An iterative, and often recursive process
- Rarely will there be a dominant solution
- A complete life cycle perspective of capability affordability is needed
- Portfolios consist of a dynamic set of capabilities
- Risk considerations are important and essential element
- Timing is important
- Proportionality is important
- Initial affordability analysis tends to be lost when key programmatic decisions are made
- Trade space boundaries must be known



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Affordability Exit Criteria: Sufficiency

- **Sufficiency Criteria to Support a Good Affordability Analysis**
 - Grounded in a value proposition
 - Addresses the entire life cycle
 - Includes portfolio assessment
 - Is time specific
 - Contains data-driven analysis





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Affordability Exit Criteria: Quality

- If these sufficiency criteria are satisfied, the analysis will be able to provide a core set of quality information to decision makers
 - Prioritization
 - Trade Demands
 - Dollars per Capability
 - Is it Worth the Cost
 - Behavioral Change

How much do we prefer this capability?

How much do we need it?

How much do we spend on related capabilities?

Is it a good deal we cannot pass up and why?

What are show-stoppers we must attend to for success?



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Affordability Analysis Process

An Overview: “Big A” Affordability Analysis

