

External

Strategic Value of the Business Case Analysis (BCA)

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Definition of a Business Case Analysis

- ▶ According to the Defense Acquisition University:
 - A business case is a defined deliverable that describes an investment opportunity
 - Its main goal is to help management decide, in a rational way, the true business value of a potential investment, and whether or not to proceed
 - It both justifies the investment and guides the subsequent work
 - It drives results (not just promises them) because it's used to ensure the project and expected benefits are delivered

DoD Directives for Business Case Analysis

- ▶ USD(AT&L) Memorandum, January 23, 2004, Performance Based Logistics (PBL) Business Case Analysis (BCA) directs BCAs be conducted on all Sustainment Investments to ensure cost effective decisions are made
 - BCAs will evaluate all services or activities needed to meet warfighter performance requirements using ‘best value’ assessments
 - BCAs will continue through life cycle process with oversight to ensure reassessment at appropriate trigger points, including:
 - Life Cycle Cost (LCC) updates
 - Reduced Total Ownership Costs activities
 - And/or continuous improvements actions
 - GAO has highlighted BCAs as a preferred acquisition strategy to keep cost, schedule, and risk low in acquisition and sustainment decisions

BCA Process Compliance with Laws and Guidance

- ▶ Air Force Instruction 65-509, Guidance for Business Case Analysis (Certified Current, 19 September 2011)
 - Executive Summary
 - Problem Statement
 - Ground Rules & Assumptions
 - Current State Description – “Status Quo” or “As Is”
 - Future State Description – “To-Be”
 - Cost-Benefit Analysis
 - Recommendation
 - Sensitivity and Risk Analyses
 - Change Management Plan
- ▶ Air Force Manual 65-510, Business Case Analysis Procedures (Certified Current, 19 October 2010)
 - Augments AFI 65-510 with specific explanations and requirements of each section
- ▶ OSD/AT&L Policy on BCAs
 - Core Logistics Capability, Title 10, USC, Section 2464
 - Limitations on the Performance of Depot-Level Maintenance of Materiel (50/50), Title 10, USC, Section 2466
- ▶ OMB Circular A-11 (Source document for Air Force Interim BCA Guidance) and OMB Circular A-94 (Discount Rates)

BCA Issues and Concerns

- ▶ While guidance abounds from GAO, OSD, and the Services there is a lack of understanding on how to accomplish the BCA and present the results
 - The BCA process should be rigorous enough to defend the decision from outside sources (GAO, DoD IG, & higher Headquarters)
- ▶ Different organizations perform BCAs differently across the Agency's
- ▶ Organizations must realize that a BCA process should depend on the size and scope of the requirements of the project / process / program being evaluated
- ▶ A satisfactory BCA process ultimately must:
 - Provide results that integrate benefits, cost and risk into an understandable and defensible recommendation
 - Provide a fact based methodology able to withstand the scrutiny of OSD and GAO
 - Involve program stakeholders to the greatest extent practicable

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Key Background and Top Level Information

▶ Executive Summary

- Provide a summary of the proposed investment decision. This section should focus on the key highlights that will then be expounded upon in the sections that follow the executive summary

▶ Problem Statement

- A well-developed BCA always begins with a problem statement that clearly and concisely defines the problem, requirement or opportunity to be analyzed. The problem statement helps define the framework of the analysis to be performed. The need for a long term sustainment and support strategy for a weapon system is an example of an problem statement that a BCA can solve

▶ Ground Rules and Assumption

- Assumptions are beliefs about what is true of a current or future state of affairs for a situation. It is crucial to identify all key assumptions and evaluate its impact on the business case. Assumptions are critical because not including a key assumption, or changing key assumptions can directly influence which alternative is recommended

Scenario Development

- ▶ Important to reveal all costs and benefits of particular scenario as it assesses benefits, cost and risk to effectively evaluate alternative strategies

- ▶ Baseline or Status Quo
 - A description of the baseline state of operations and it establishes the foundation against which the alternatives scenarios can be evaluated
 - Critical to the development of the alternative scenarios
 - Each decision should be evaluated in the context of the current process that exists prior to the implementation of one of the alternative scenarios

- ▶ Alternative Scenario Description or Future To-be
 - State of operations that the proposed alternative scenario will help achieve as compared to the current state or status quo
 - Describe how the scenario is different than the baseline and any new processes that are introduced

Robust Analysis Completed in a BCA

► Benefits Analysis

- Identify benefit support criteria and performance measures
- Assess the relative importance of each criteria
- Collect quantitative data and qualitative subject matter expert opinion

► Cost Analysis

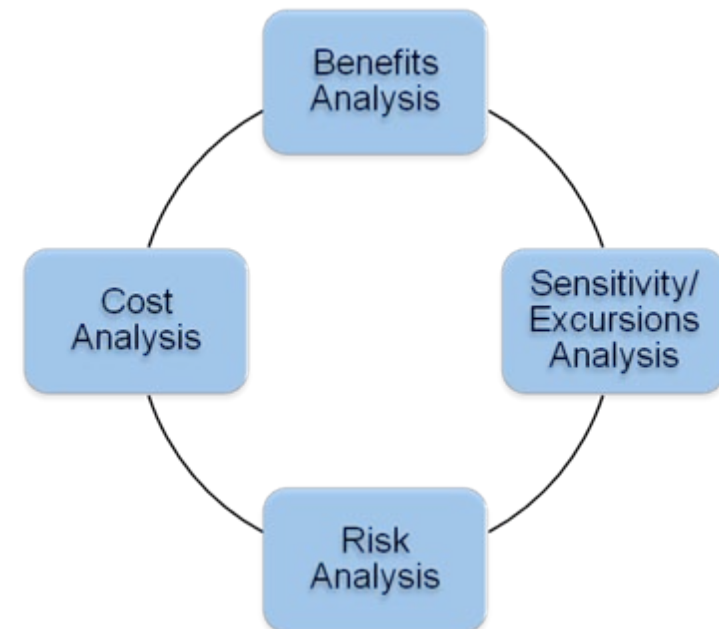
- Identify cost elements and methodology to develop Life Cycle Cost Estimates
- Produce cost estimates for baseline and each scenario

► Risk Analysis

- Identify potential risks for each scenario
- Assess the probability of occurrence and the severity of impact
- Incorporated into Benefits and Cost Metrics
- Consider risk mitigation strategies for final recommendation

► Sensitivity/Excursion Analysis

- Conduct “what if” analyses
- Adjust variable data upward and downward to determine sensitivity of result to variation in inputs
- Apply alternative excursions to assess how changes in assumptions affect results



Defined Cost and Benefit Metrics

- ▶ Examples of metrics for Benefits and Costs used to weight each scenario
 - Benefit Metrics
 - Operational Availability and Readiness – Activities that optimize long term fleet support and availability while reducing support costs
 - Mean Time Between Failures (MTBF) – Elapsed time between inherent failures of a system during operation or missions
 - Financial Metrics
 - Return on Investment (ROI) – The anticipated savings from an alternative investment as a percentage of its outlay, e.g., annual benefit divided by the investment amount
 - Payback Period – The payback period is the length of time, usually measured in years, required to recover the cost of an investment.
 - Net Present Value (NPV) – The future stream of benefits and costs converted into equivalent values today. The measure indicates the value of the case, taking into account what alternative rate of return might have been realized
 - Recurring Costs – The cost which occurs on a regular basis, usually consisting of material and manpower for repair, program management or other sustainment tasks
 - Non-recurring Costs (Investment) – A one time cost to the government to “stand up” a repair effort, usually consisting of facilities, support equipment, data and initial training

Analysis and Risk Assessment

▶ Quantitative & Qualitative Analysis:

- Actual performance and cost data will be collected from contractors and the government
- Stakeholders can provide input when determining the weightings of Benefits, Cost and Risk
- Stakeholders will assess the likelihood and impact of various overarching risks associated with implementing each scenario

▶ Risk Assessment:

- It is important to identify and analyze risks to determine which risks present the greatest threat to the initiative's successful outcome and inform senior leaders of risks to the proposed course of action as part of the decision making process.
- Identification of the risks, impacts, and potential mitigating strategies for the proposed plan of action

▶ Sensitivity & Excursions Analysis:

- This analysis is accomplished to investigate how systematic changes to underlying variables affected the recommended scenario
- This part of the study is used to validate the study results by assessing how susceptible the recommendation was to changes in the factors and variables that made up the projected outcomes

Recommendation and Funding

- ▶ **Recommendation:** Integration of Benefits, Cost and Risk involved in the iterative assessment that capture both tangible and intangible factors affecting each individual scenario to produce an *executable* best value strategy
 - Discuss the problem statement that with scenario will solve and why it is the best solution, related to the discussion of the current process
 - Make reference to each rejected alternative and how it compares to the recommended alternative for costs and benefits
 - Explain if there are any limitations on the Air Force implementing the best practice available due to laws, regulations or DoD policy
 - Discuss any additional risk mitigation strategies that may need to be implemented to further reduce the potential for performance or cost impacts

- ▶ **Development of Funding Strategy :** Identify the amount of funding required for each phase of the recommended alternative (implement and sustainment), identify the source for these funds, and current funding status. The cost estimate provided the investment and recurring cost of the alternative. Determine the resource needed by budget appropriation
 - Problems may occur due to budget constrained atmosphere (i.e. not enough dollars to fund a nonrecurring effort to stand up a repair center)

A Change Management Plan is necessary for the implementation of the Recommendation

▶ Change Management Plan (CMP):

- A CMP is developed to manage the organizational change that is associated with implementing a new initiative. A CMP should discuss any cultural changes required, shared visions between stakeholders, what necessitates the change, expected stakeholder resistances, leadership buy-in, communication strategies, and possible infrastructure changes
- Implementation is most successful when the CMP is used for effective marketing of the project and the building of a partnership between the project management team and the user community

▶ The CMP should contain the following components:

- **Stakeholder Action Plan** – A stakeholder action plan describes the stakeholders involved in the change initiative and how they will be informed, involved, convinced, or otherwise engaged in order to gain their support. Stakeholders are those who have an interest in the change initiative, a requirement, or a means of achieving the desired end state
- **Communications Plan** – A communications plan describes the means, methods, and messages, including who will issue messages, along with a schedule for delivery, to explain the initiative to stakeholders and other parties impacted by the initiative
- **Training Plan** – A training plan describes the strategies and tactics to provide the necessary knowledge, skills, and capability to those individuals and organizations involved in the change initiative so that they can perform effectively
- **Implementation or Action Plan** – An implementation or action plan describes the strategic level activities necessary for a successful transition from current state to future state
- **Key Performance Measures and Outcomes** – Key performance measures and outcomes describe the measurements and expected results that can be used to track results of the initiative over time

Change Management Plan is a Living Document

- ▶ The Change Management Plan is intended to be a living document used as a guide for the program changes
- ▶ The document should be updated periodically to reflect progress, modified to reflect new, changed, or no longer necessary opportunities, and adapted as the change program evolves
- ▶ The plan is owned, executed, and maintained by the Program Manager. The Program Manager has an essential role in implementing effective organizational transition to the future state sustainment strategy.
- ▶ The manager's role focuses on the transition of the organization and is responsible for managing the plan to success

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Demonstration of a Case Study is essential to understand a BCA

- ▶ Analysis was performed on a ACAT 1 Air Force Acquisition programs
 - Charts and Graphs are shown in Percentages of the largest scenario costs in order to protect program identity

- ▶ Seven different scenarios were used in the analysis
 - Performance of work distributed different between Government or Contractor

- ▶ Management vs. Maintenance Analysis
 - Labor activities were analyzed for the following areas:
 - Program Management, Product Support Integration, Material Management and Field Service Representatives
 - Rates, Hours, and Costs

- ▶ Sensitivity Analysis on major impacts to program costs
 - Program Operations (Flyer Hours, Steaming Hours, etc.)
 - Reveals cost impact of Management vs. Maintenance activities

The scope of the analysis is on a weapon system sustainment activities to include management and maintenance activities

▶ Management Activities

- Program Management – Centralized authority and responsibility for managing the life cycle of the a Weapon System
- Product Support Integration – Activities such as sustaining logistics and sustaining engineering, to include management support

▶ Maintenance Activities

- Materiel Management – Inventory and Equipment Management to include provisioning, forecasting and procurement for spares, repairs management, packaging, handling, storage and transportation
- Depot Maintenance – Touch labor required to provide depot-level maintenance, repair and overhaul of air vehicles (to include engines and other subsystems), payloads, and ground segments

Case Study will evaluate the baseline against six scenarios

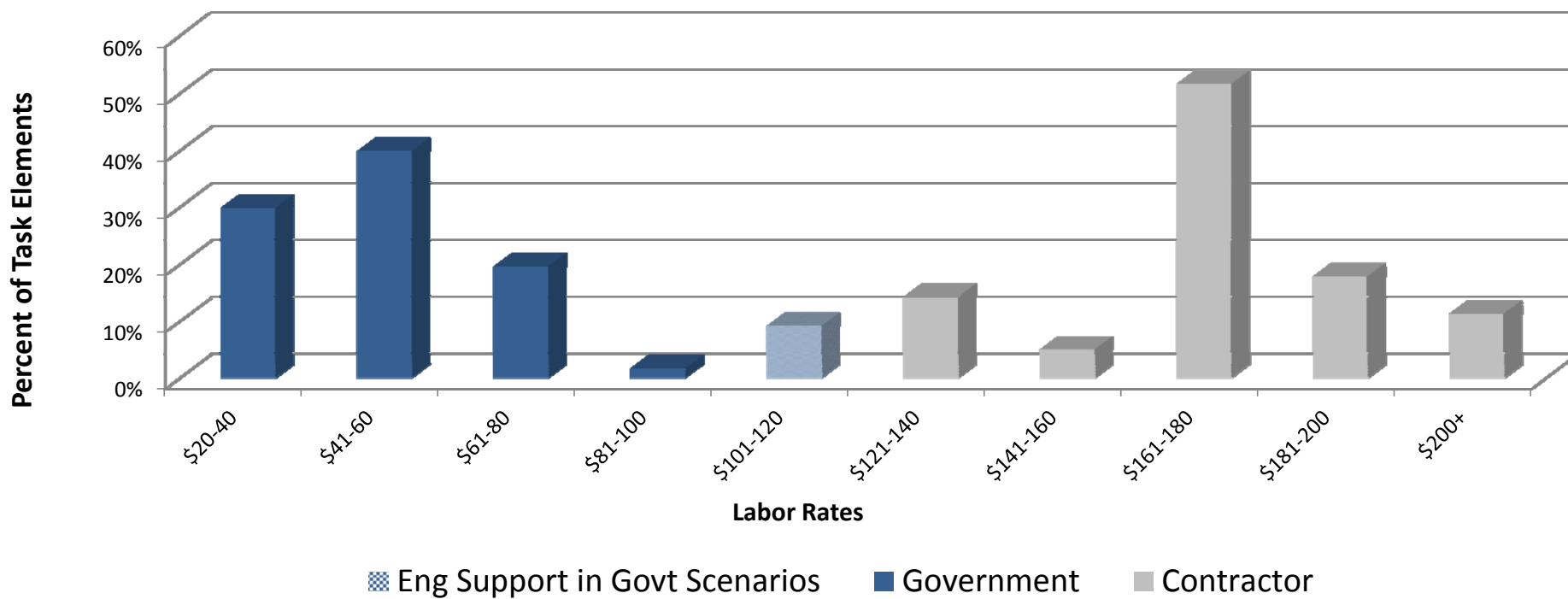
Scenarios	Management	Maintenance
Scenario 1 (Baseline)	Contractor	Contractor
Scenario 2	Government	Government
Scenario 3 (Unconstrained)	Best Value Mix	Best Value Mix
Scenario 4	Contractor	Contractor (Partnership)
Scenario 5	Contractor	Government
Scenario 6	Government	Contractor (Partnership)
Scenario 7	Government	Contractor & Government

► Performance Based Logistics (PBL) Contracts

- Provide the Contractor with both the incentives and independence to maximize performance
- Public/Private Partnering with Government Support Centers to satisfy Core capability requirements and possibly improve the Air Force’s 50/50 posture

Labor Rates Summary

Labor Rates Summary

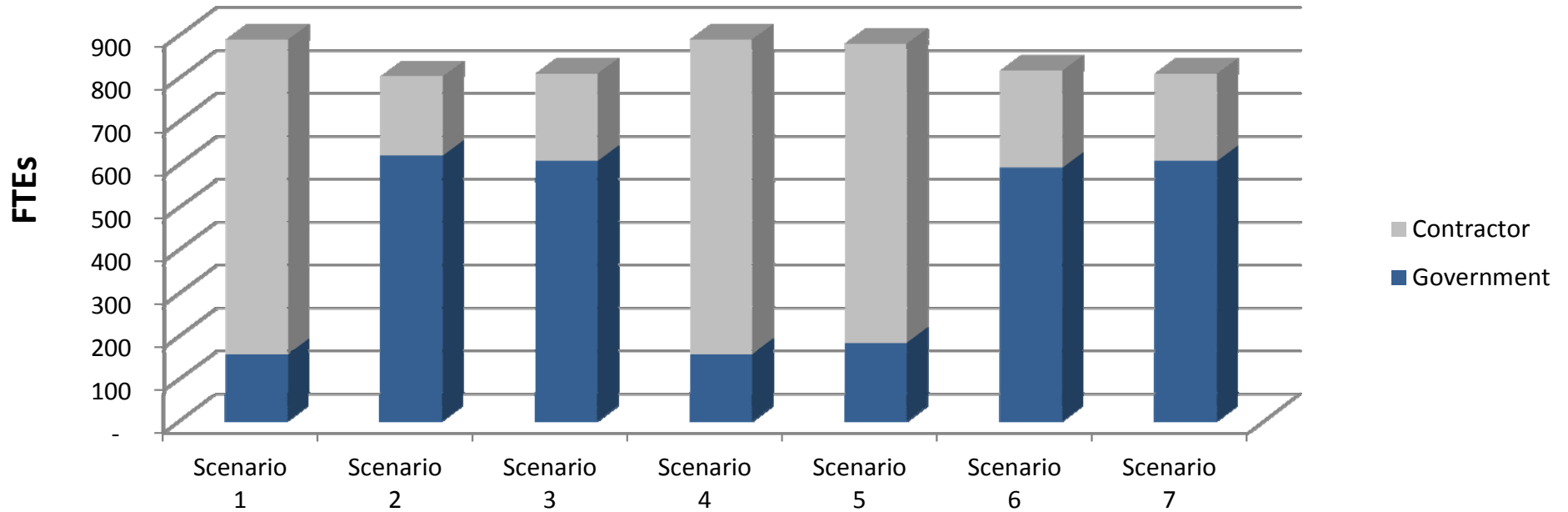


Significant differences in management labor rates

Labor Hours Summary

Management Labor Hours Summary

(Program Mgt, Product Support Integration, Materiel Mgt & Field Service Reps)

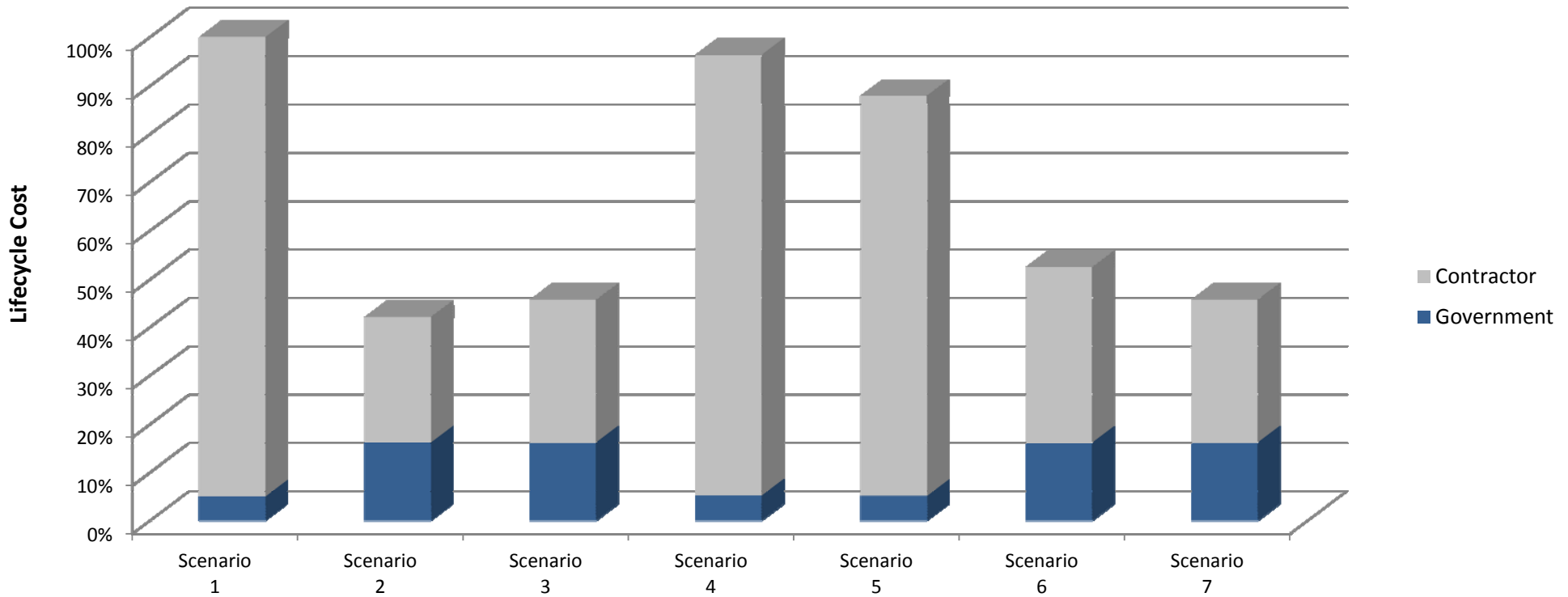


Contractor heavy scenarios tended to have approximately 100 more FTEs estimated in their management activities

Labor Cost Summary

Management Labor Cost Summary

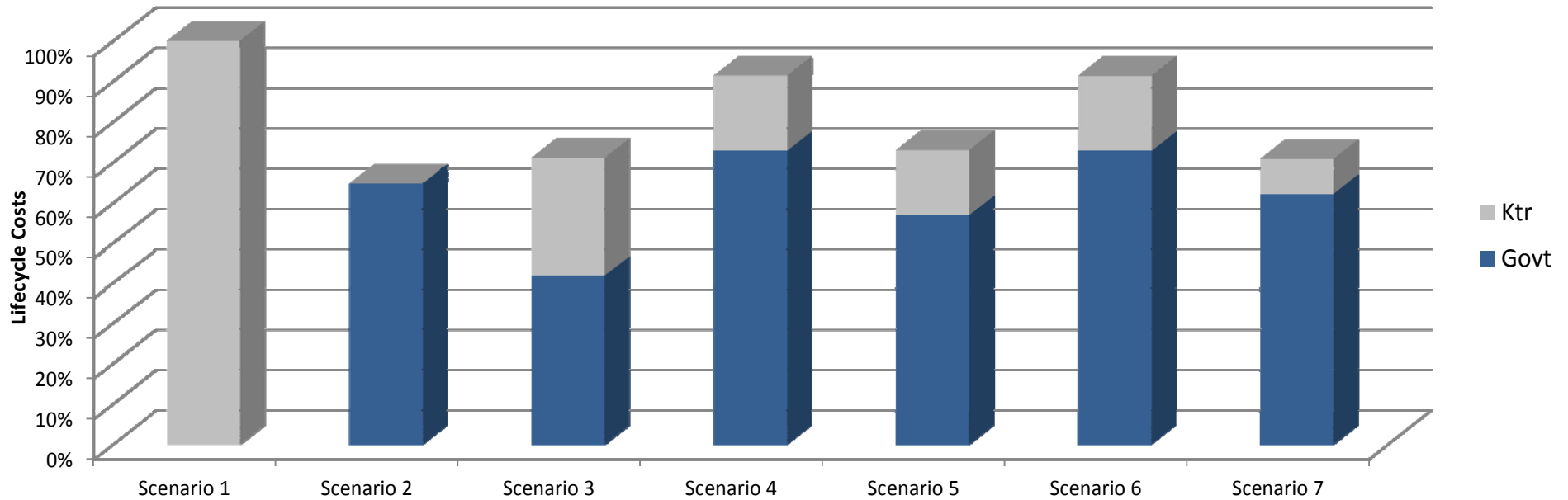
(Program Mgt, Product Support Integration, Material Mgt & Field Service Reps)



Large difference in labor rates plus additional FTEs caused significant differences in total cost

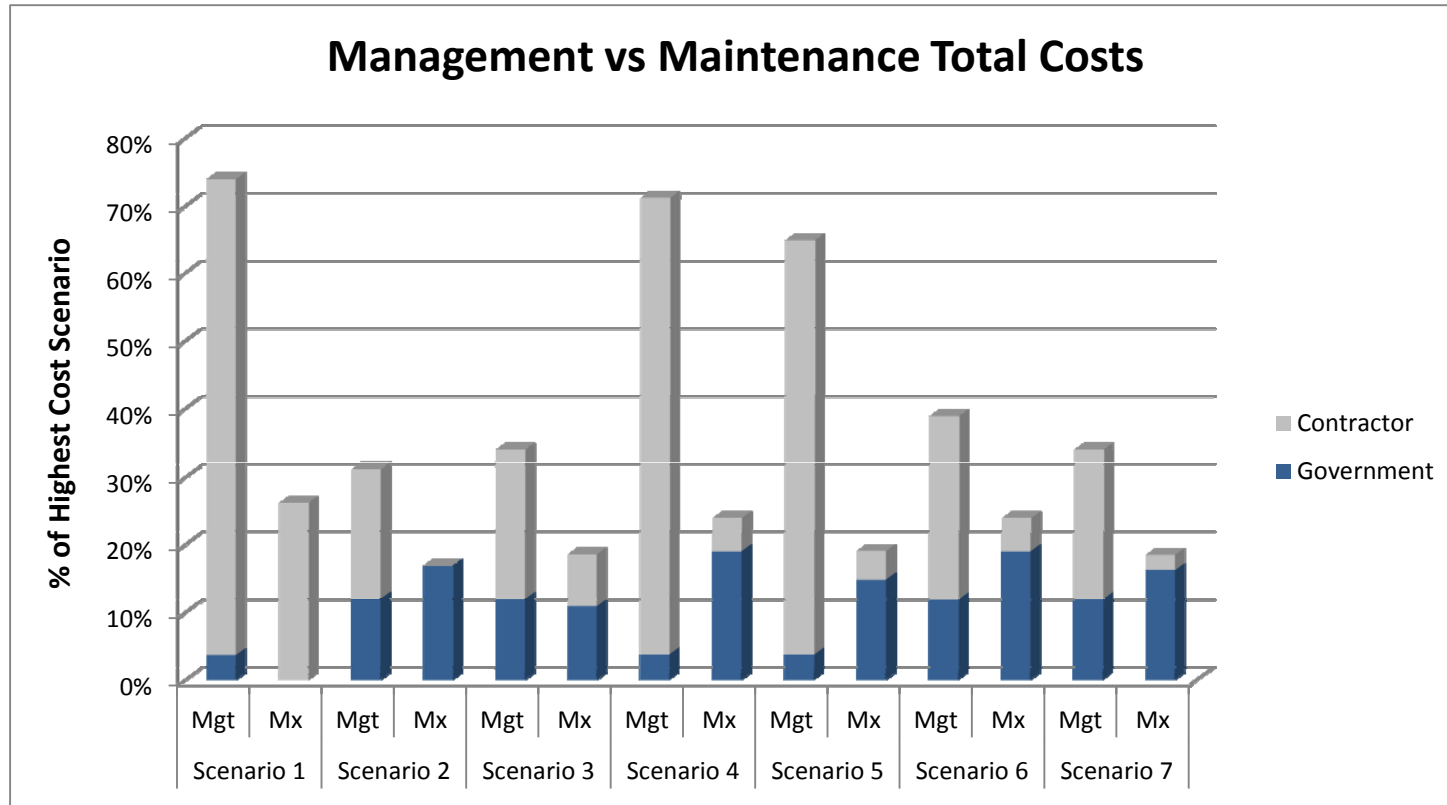
Depot Maintenance Costs

Depot Maintenance Workload Costs (Annual Costs)



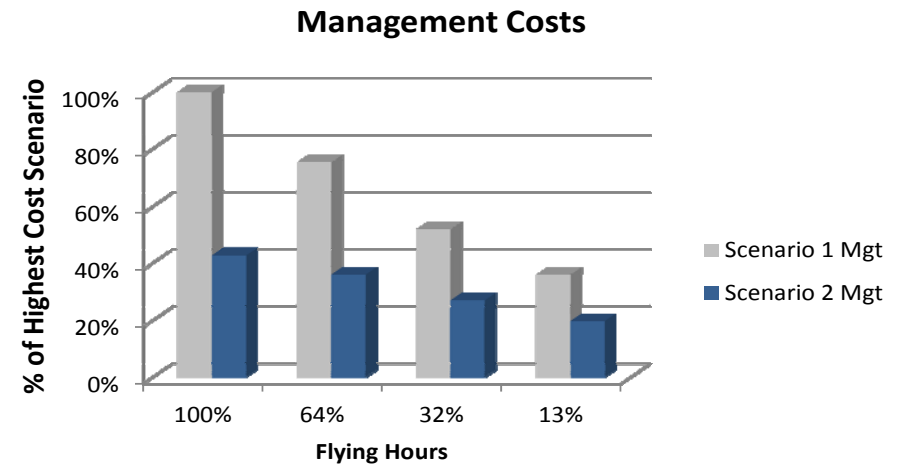
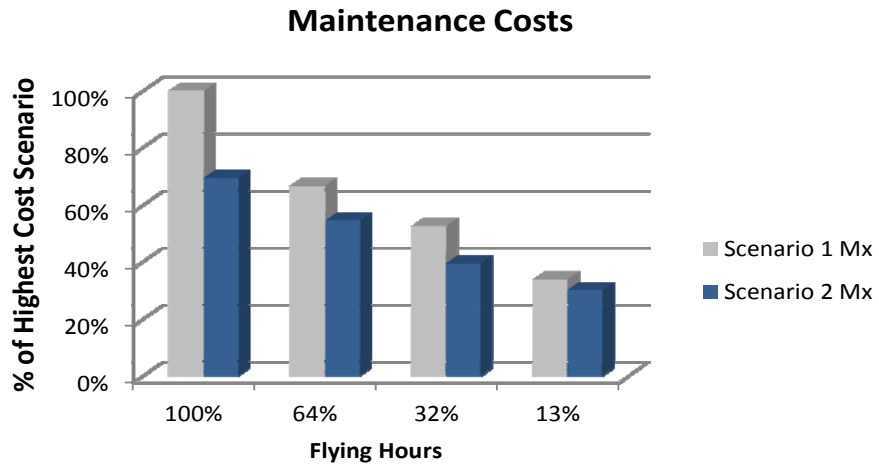
Fairly large cost differences were seen in depot maintenance but not to the extent that was seen in management activities

Management vs. Maintenance Costs



Scenarios with highest cost are a result of contractor management activities not maintenance activities

Sensitivity Analysis reveals greater insight into cost drivers



As Aircraft flying hours are reduced:

- MX cost difference between Ctr and Govt quickly becomes negligible
 - Supports a DMR-O work-share environment
- Mgmt. cost difference between Ctr and Govt remain substantial until Flying Hours are reduced below 10% of baseline hours
 - Only at this point is it recommended to move to a scenario with Ctr management duties
- Weighted cost benefit score reaches break-even point around 13% of baseline Flying Hours
 - This means the **cost metrics** become more attractive for scenarios with large Ctr efforts as flying hours are reduced enough to minimize management cost differential
 - The primary cost metric effected is ROI
 - Investment dollars do not go down as flying hours are reduced
 - Less savings achieved on low fly hours scenarios = low ROI

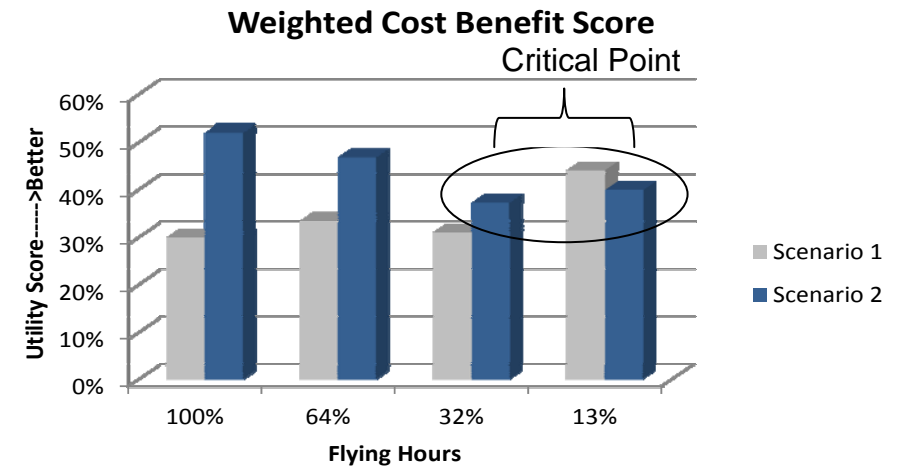


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Strategic Value and Management Applicability

▶ Recommendation provides Management the tools for future success

- Delivers the sustainment strategy for the program lifecycle
- Revealing areas with large cost differentials between government and contractor scenario options
- Allows the Program Office to keep the superior performance of the contractor with reduction in higher costs

▶ Strategic Value

- A BCA can become the negotiator and be utilized to pressure the contractor into so called "cutting costs" while delivering nearly the same high performance that the warfighter desires
- BCA is an effective tool that will allow leaders to leverage the study to make informed decisions about cost saving measures even when in-sourcing or standing up sustainment resources may not be a viable option due to budget constraints

▶ Other reasons for BCA

- The cost to the program office to complete a BCA allows for minimal involvement as it is an independent analysis and offers a high return on investment
- Analyses like the BCA are becoming more necessary because of the increasing budgetary constraints placed on the DoD by the Congressional Sequestrations

Limitations and Lessons Learned

▶ Limitations

- Subject Matter Expert (SME) opinion during the identification of the functional work areas of the work breakdown structure
- The functional work areas of Program Management (PM), Product Support Integration (PSI), Materiel Management (MM) and Depot Maintenance (DM) and the division of workload and dollar value associated with the workload was decided by a team of subject matter experts
- For example, many PSI and MM functions are similar in nature which means the savings we identify mostly in PM/PSI functions could be identified partially in MM, depending on the SME identification opinion
- Limited number of data points represented in this analysis
- Analysis is based on only 2 Air Force ACAT-1 Program
- One of the two programs has already acted on the BCA and immediately saw cost reductions by negotiating with the prime contractor

▶ Lessons Learned

- Formation of the proper team of SMEs, such as overlapping members of BCA teams or previous experience working BCAs
- Team Leader needs BCA experience and understand the DoD BCA methodology
- Receiving the necessary data for the analysis is an extremely rigorous process and needs to be started as early as possible in the project

Questions and Contact Information

- ▶ Questions?
- ▶ Presenter Contact Information

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BACKUP SLIDES

Abstract - Strategic Value of a Business Case Analysis

- ▶ The impact of sequestration has become the main topic of discussion in almost all circles in the Department of Defense since the Budget Control Act passed into law in 2011. In response to reduced budget sequestration, the DoD is interested in exploring potential cost reductions in weapon system operations. In nearly all lifecycle costs, sustainment generally makes up 60% to 80% of the total program costs. In a defense world seeking increased efficiencies and budget savings it is imperative to examine effective sustainment strategies. We intend to demonstrate through previous analysis and results that a Business Case Analysis (BCA) is an effective tool that will allow leaders to leverage the study to make informed decisions about cost saving measures even when in-sourcing may not be a viable option due to budget constraints.
- ▶ A BCA is a decision support document that identifies alternatives and presents business, economic, risk, and technical arguments for selecting an alternative to achieve organizational or functional missions and goals. The goal of this presentation is to demonstrate this definition by presenting how a BCA is utilized to generate strategic and beneficial value to defense organizations. The attendees will be able to understand a BCA as they are walked through the required guidance and necessary documentation, the important, recommendation that is used by decisions makers for judgments for a weapon systems sustainment strategy, and reveal the most important benefit of strategic value to the defense organization.
- ▶ This presentations analysis and results are based on recent BCA studies completed through the analysis of prime contractor sustainment and operations proposals and historic (actual) contract data. Although the assessment is based on only a few recent BCA studies I believe the results found can be applied across multiple aircraft and other major programs across armed services.

Biography

- ▶ Eric Buller is a Senior Consultant at Booz Allen Hamilton based in Washington DC. He currently provides cost estimating and analysis support to clients in Navy Sea Systems Command at the Washington Navy Yard. Previously, he was located in the firm's Dayton, OH office providing cost and risk analysis and acquisition logistics support to Aerospace clients at Air Force Materiel Command, Air Force Space Command and Headquarters Air Force. He has contributed to multiple Cost Benefit Analysis (CBAs), Business Case Analysis (BCAs) and program life cycle cost estimates for multiple Department of Defense weapon systems. He started with the firm as an Intern in 2009. He graduated from the University of Dayton in 2010 with a BS in Business Administration, majoring in Finance and Entrepreneurship. He is a certified Professional Cost Estimator/Analyst (PCEA) as of September 2011. This will be his first presentation at the a professional conference.