

**UNCLASSIFIED**

DEPARTMENT OF DEFENSE



## **Business Case Analysis:**

< *Specify the Title of the IT Project Here* >

<Submittal Date >

< Version >

< Organization >

Per SECDEF directive, include the cost estimate associated with preparing this BCA. See SECDEF Memo of 27 Dec 2010, Subject: Consideration of Costs in DoD Decision-Making, in Appendix H for information and instructions.

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<POC >

**<<Template Forward/Instructions>>**

**<<Delete this page when tailoring. All template guidance within<< >> should be deleted prior to submission>>**

**<<Tailor per project appropriately given project scope, size, state/documentation availability/time/other constraints for BCA preparation>>**

**<<Instructions regarding BCA Classification Marking:>>**

**<<UNCLASSIFIED: If the final BCA does not contain sensitive or classified information, mark the front and back covers "UNCLASSIFIED" (as shown on this BCA template).>>**

**<<FOUO: A "For Official Use Only" (FOUO) designation applies to unclassified information sensitive in nature and exempt from public release under the Freedom of Information Act. If the BCA contains such information, "FOUO" must appear on the front and back covers (where UNCLASSIFIED now appears) and on the page(s) on which the sensitive information exists.>>**

**<<CLASSIFIED: BCAs containing any CLASSIFIED information are to be handled through separate channels, in accordance with the submitting organization's CLASSIFIED handling process and all applicable security policy procedures.>>**

**Approval and Change Summary for the  
[BCA name]  
Business Case Analysis**

Ver. No,	Version Date	Change Type	Change Authority	Disposition	Reference
X.XX.XX	DD-MM-YY	[Initial approval, decision authority directed change; governance board directed change; minor update; administrative change; new major version; other]	[Decision authority; governance board; integrated product team; project lead; other]  <<Provide name and title>>	[Approved; approved with conditions; disapproved; cancel; other]	[Decision authority decision memorandum; governance board meeting minutes; integrated product team or project lead or program manager email/ memorandum]  <<Provide link to document or document location.>>

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## EXECUTIVE SUMMARY

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<<Present an executive-level overview in **1-2 pages** that describes:

- A validated need/requirement. (Should be substantiated with statute, regulations, policy, strategic priorities, etc.)
- Evidence that the need is not being met, including the magnitude and quantifiable measure(s) of the problem/gap, and which mission/functional areas are affected.
- The proposed project/initiative that will address this problem and the organization/person(s) leading it; what mission outcomes, key objectives (preferably measurable) it satisfies; cost, savings, process improvements, other benefits and overall implementation timeline.
- A summary of the project/initiative's requirements.
- Boundaries/scope of the project -- what is included and excluded. (If project will be executed in phases/spirals, identify how this BCA fits into a larger plan).
- Summary of the comparison of alternatives. (Briefly describe alternatives considered and rationale for final selection).
- High level implementation strategy and key milestones (e.g., start and delivery dates).
- Key assumptions and constraints foundational to the analysis (may be referenced if difficult to summarize).
- Contract vehicle(s) that could be utilized to host the proposed solution; and
- For cloud outsourcing/hosting situations, include a clear statement regarding any contract issues that impact this proposal (e.g., incorporating language into contract to mitigate known risks).

Recommendation and justification for the selected alternative. As appropriate, include a summary level comparison chart/graph/table of status quo and primary alternatives to presenting the recommendation.>>

**<<Keep information at a summary level and focus on the most important points. Reference detailed discussion, if necessary. DO NOT EXCEED 1-2 PAGES.>>**

**<< The executive summary should be written last to make sure the analysis supports the recommendation rather than the other way around.>>**

# 1.0 OVERVIEW

---

## 1.1 Purpose

<<Clearly state the purpose of the Business Case Analysis (BCA), including subject, to whom submitted, and any other clarifying information. For example:

*This Business Case Analysis (BCA) for [name of business case] includes an objectively documented analysis, comparison of alternatives and recommendation to address [describe a critical mission need(s), requirement(s), gap(s), or problem]. It is being submitted to the [decision authority name] for review, feedback and final decision.>>*

## 1.2 Problem Statement

<<Describe the gap/problem(s), its magnitude (i.e., which mission/functional areas, people, organizations, processes, etc. are affected) and the primary mission or business impacts if not corrected.>>

## 1.3 Background and Context

<<Provide additional context that explains the current situation (e.g., policy, process, environmental factors). Identify root causes (if known) and contributors to the observed problem(s). Include relevant research and information on industry or market conditions as appropriate. Keep the focus strategic.>>

## 1.4 Project Initiative Description and Requirement(s)

<<Provide a short, high level description of the project -- what it is and what it is intended to accomplish. Address **high level requirement(s)**, to include: strategic alignment, mission needs, mandates, functional needs, Data Impact Level Assessment per DoD Risk Management Framework, and DoD Cloud Security Model and Mission Impact Assessment. Detailed requirements are provided in Appendix C. Provide key baseline value(s), overall objectives (strategic and operational) and high level timeline (start and end dates). Explain if objectives are to be achieved in increments.>>

## 1.5 Benefits

<<Describe the desired/expected outcomes, positive results, benefits, efficiencies, and cost savings of implementing this project/program (in measureable terms if possible).>>

## 1.6 Scope

<<Define the project/initiative's boundaries (e.g., technology, organizations, users, processes, functions, etc.). Explain what it includes and excludes.>>

## 1.7 Assumptions and Constraints

<<Briefly explain key assumptions and constraints essential to understanding the basis of the analysis contained in the business case. Include timeframe of fiscal years used in the analysis. If root causes were not identified in 1.3 because they are unknown, assumptions concerning root causes should be noted here.>>

## 1.8 POCs and Roles & Responsibilities

<<Include contact information for: the person and organization leading the effort, the functional and technical experts and BCA developers who wrote or were consulted in the writing of the BCA, the financial person/organization who/that validated the financial measures, and other persons who may be contacted to answer questions about the BCA. Specify POC roles and responsibility in the writing of the BCA so that any questions can be more quickly addressed. For example:

*The following personnel were involved with the development of this BCA and may be contacted.>>*

## 2.0 ASSUMPTIONS, CONSTRAINTS, AND EVALUATION METHODOLOGIES

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<<Sections 2.1-2.3 below describe assumptions and constraints (financial and non-financial) critical to the business case analysis. An assumption is an informed position about what is believed to be true for a situation in which explicit factual knowledge is unobtainable. Examples of assumptions include:

- Extrapolation of facts from a limited data set (e.g., survey),
- Expectations of future outcomes based on historical precedence or other rationale,
- Information believed to be true based on credible authorities.

Constraints are factors that limit the analysis, possible solutions and/or expected outcomes. Examples of constraints include:

- Availability of data and information, expertise, funding, manpower, etc.;
- Requirement to satisfy legislation, regulations, and policy;
- Technical capability of a solution.

Keep the assumptions and constraint descriptions at fairly high level. Add appendices as needed or refer to other documents for detailed computations. Assumptions and constraints unique to specific alternatives should be explained in Chapter 3, where each alternative is described in detail.>>

### 2.1 Costing Assumptions and Constraints

<<Assumptions represent a set of judgments about past, present, or future conditions postulated as true in the absence of positive proof. Describe key costing assumptions and constraints critical to the BCA. Define the life cycle period for the analysis, which will impact the cost estimate tables used in the BCA. Include all applicable fiscal years within the life cycle for each Alternative. Document discount rate and inflation rates used along with applicable dates/sources. Explain the confidence level in values and whether they represent low-, mid- or high-range estimates. Reference where more detailed costing information can be obtained.>>

### 2.2 Non-Financial Assumptions and Constraints

<<Describe non-costing related assumptions and constraints critical to the BCA. Explain why they are important and the extent to which they could affect the analysis or project results if they change. Examples of non-financial constraints include government mandates, technological limitations and synchronization with other projects/initiatives. >>

### 2.3 Other Constraints

<<Document any additional constraints, such as schedule or budgetary constraints provided by senior leadership direction.>>

### 2.4 Economic Viability Assessment Methodology

<<Explain the economic viability measurement methodology used to compare alternative solutions.>>

<<Metrics should be generated for: net present value (NPV), break-even (BE), benefit cost ratio (BCR) and financial return on investment (ROI) using Appendix G as a guide.>>

### 2.5 Non-Financial Measure Scoring Methodologies

<<If the formats included in this BCA template are used, the standard language provided below may be used and/or tailored as desired. For example:

*In addition to making financial comparisons between the [current state name] and each alternative, non-financial comparisons were also performed and scored as follows:*

**Requirements satisfaction:** *The degree to which each alternative satisfied mandatory requirements was scored on a scale of 1 (low) to 5 (high)). Weighting was [not used/used] for high priority*



*requirements. [If weighting was used, explain rationale]. Specific requirements areas scored include: [list in bullets and indicate which were weighted, as applicable].*

***Operational Impacts:*** *The expected positive and negative impacts of implementing each alternative were evaluated across the following operational/business function areas: [list: e.g., mission/business function, interoperability, customer benefit, efficiency, information assurance/security, reliability/quality, sustainability, etc.] and scored on a scale of -5 (negative) to +5 (positive).*

***Risk:*** *Potential areas of risk for [list risk areas] were identified. The probability of occurring (certain, probable, possible, improbable) and the impact if realized (catastrophic, high, moderate, low) were assessed for each alternative. Risk Management strategies were identified and all risks were rescored as if the risk management action had been implemented to assess effectiveness. >>*

## 3.0 ALTERNATIVES CONSIDERED

### 3.1 Baseline and Alternatives Overview

<<Alternative 1, Baseline, Status Quo, and As Is are synonymous terms. State up front how many additional alternatives were considered for the BCA. For example:

*The following [cite number] alternatives were considered for this BCA:*

- **Alternative 1 – [Baseline/Status Quo/As Is] – [short description]**
- **Alternative 2 – [short name] – [short description]**
- **Alternative 3 – [short name] – [short description]**

<<A minimum of three alternatives are recommended for BCA. >>

<<Consider criteria in formulating and evaluating possible alternatives to the problem. Criteria are based on mission need and required capability from the problem statement as well as on facts, assumptions, and the Voice of the Stakeholder or anything else that provides separation between alternatives. There are two types of criteria: screening and selection / evaluation criteria. Screening criteria are used to assess the viability of the alternatives, and can be used to constrain the number of alternatives to be evaluated. Selection / evaluation criteria are developed in order to differentiate among alternatives under consideration. Some examples of screening criteria include:>>

Screening Criteria	Definition
Suitability	Solves the problem and is legal and ethical. The alternative can accomplish the mission within the decision-maker's intent and guidance
Feasibility	Fits within available resources
Acceptability	Is worth the cost or risk
Distinguishability	Differs significantly from other solutions
Completeness	Contains the critical aspects of solving the problem from start to finish

<<Explain very generally why the alternatives were selected (e.g., alignment to goals, feasibility, cost, etc.) Additional detail is provided below. As appropriate, provide information on comparable projects and/or benchmark models if available.>> For example:

*These alternatives were selected because [state reason(s)]. Each of these alternatives is described below in more detail and assessed across the following dimensions: cost, savings and economic viability; requirements satisfaction; operational impacts; and risk. Consistent formats and scoring methodologies were used so results can be easily compared.*

### 3.2 Alternative 1 (Baseline) Overview

#### 3.2.1 Cost and Economic Viability

<<Develop a life-cycle cost estimate (LCCE) by resource type (DME/O&S) and appropriation, for Alternative 1 (baseline/status quo/As-Is state) using the cost element structure in Appendix B as a guide. Life-cycle cost estimates for each alternative will be compared with the baseline/status quo/As-Is estimate. Clearly state key cost/economic information for the alternative being discussed. For example: The total cost (understood to be synonymous with Total Cost of Ownership) of this alternative is [state cost and timeframe]. It includes Direct, Indirect, and G&A costs for [explain materiel and non-materiel costs included]. Estimates are [explain: confidence in estimates; whether they represent high, medium, or low values; sensitivity (see definition)].>>

Alternative 1 (Baseline) Life Cycle Costs (dollars in millions)										
Resource Type (DME/O&S) Appropriation	Prior	FY15	FY16	FY17	FY18	FY19	FY20	FY21	To Complete	LCCE
<b>DME</b>		2	2	2	0	0	0	0		6
RDT&E										
Procurement										
O&M										
Other										
<b>O&amp;S</b>		4	4	4	4	4	4	4		28
RDT&E										
Procurement										
O&M										
Other										
<b>TOTAL</b>		<b>\$6</b>	<b>\$6</b>	<b>\$6</b>	<b>\$4</b>	<b>\$4</b>	<b>\$4</b>	<b>\$4</b>		<b>\$34</b>

*DME = Development, Modernization, or Enhancement*  
*O&S = Operations and Sustainment*

<<If the cost element structure in Appendix B is known, then the DME row in this table will equal the As-Is Investment row from the structure in Appendix B. In the write-up, articulate the appropriations included in the 'Other' rows of this table. It is acceptable to include extra rows for additional appropriations vice summing to 'other'.>>

<<Apply discounting and economic analysis formulas per guidance in Appendix G to develop Economic Viability metrics.>>

Alternative 1 - Economic Viability							
Net Present Value (NPV) =		Break Even (Discounted) =		Benefit Cost Ratio (BCR) =		Return on Investment (ROI) =	

### 3.2.2 Requirements Summary

<< Provide a summary for how Alternative 1 satisfies requirements. For example:

*This alternative satisfies [all, most, some] known requirements. Its greatest strengths are in [explain what they are and why they are important]. Its greatest limitations are [explain what they are and why they are an issue]. Expectations regarding how well this alternative is expected to satisfy each requirement have been scored and provided in the table below.>>*

<< Scores, weights, and justification for the assigned Weights should be developed through a collaborative process with stakeholders and documented in this section. Sum of weights should = 100%.>>

Alternative # 1: Requirements Satisfaction				
Requirement	Score (0 to 5) <sup>1</sup>	Weight <sup>2</sup>	Weighted Score <sup>3</sup>	Score Rationale
[Describe requirement]				
[Describe requirement]				

**Total Score<sup>4</sup>**

- Score range is: 0 (does not meet requirement), 1 (minimally meets requirement) to 5 (greatly exceeds requirement).
- Weighting factor for high priority requirements
- Weighted score = "score" multiplied by "weight factor"
- The unweighted and weighted scores are summed to establish the total score

### 3.2.3 Qualitative Benefits

<<Clearly state the nature of any operational impacts the alternative under discussion presents.>> For example:

*This alternative had [significant, moderate, minimal, no] negative operational impacts in the areas of [list], and [significant, moderate, minimal, no] positive benefits in the areas of [list].*

<<Expand on significant issues, areas of concern and/or strengths and how they are likely to affect the success of the project. The table below may be tailored to add/remove operational areas. For example:

*Expectations regarding how this alternative will impact operations are scored below. This list is an example, and will not apply to all projects. The operational areas must be distinct to avoid harmful correlation.>>*

Alternative 1 - Operational Benefits/Impacts		
Operational Area	Score <sup>1</sup>	Rationale
Mission/business function		
Interoperability		
Customer/User benefit		
Efficiency		
Info Assurance/Security		
Reliability/ Quality		
Sustainability		
Other		

**Total Score:**

NOTE 1: Scores range from -5 to +5. Negative scores of -4 or -5 are red; high positive impact scores of +4 or +5 are green.

### 3.2.6 Risk Summary

<<Use narrative to summarize risks. Identify risk management actions and evaluate risk before and after risk management to determine which strategies are likely to have the most impact. Identify costs associated with risk management actions. Include any risks associated with assumptions. For example:

*This alternative has been evaluated to be [high, medium, low] risk. Areas of greatest risk were [list and explain]. Areas of lowest risk were [list and explain]. If actions are taken to [describe risk management actions], it is believed that risk related to [risk factor name] [could or could not] be reduced to an acceptable level because [explain]. >>*

Risk Factor	Pre-Risk Mgmt Analysis			Risk Management Strategy	Post-Risk Mgmt Analysis		
	1. Probability	2 Impact	3 Areas Impacted		1. Probability	2. Impact	3. Areas Impacted
Insufficient Budget	Certain	Catastrophic	C	Divide system into mandatory and desirable features and only implement mandatory features	Possible	Mod	C
Requirement Change	Possible	Mod	C, P, T, S, R	Lock down technical requirements for spiral one on XX date	Possible	Mod	C,P,S,R
Dependency on XXX	Possible	High	S, R, C	Focus on aspects of project that do not depend on system xxx	Possible	Mod	C, S

#### [Notional Risk Analysis & Management Examples]

Risk Table Legend					
1. Probability		2. Impact		3. Areas of Impact	
70-100%	Certain	Project failure	Catastrophic (Cat)	Business:	Programmatic (P)
40-69%	Probable	Failure to meet major requirements, major cost increase or schedule delay	High	IT System:	Technical (T)
5-39%	Possible	Extensive adjustments needed to meet schedule	Moderate (Mod)	Delays & Slippages:	Schedule (S)
Near 0%	Improbable	Minor adjustments needed to meet goals	Low	Staff & Equipment:	Resources (R)
				Funding Shortfall:	Cost (C)

### 3.3 [Short Descriptive Name of Alternative 2] Overview

<<Identify and describe the Alternative 2. Give it a short name and summarize what it is, what it includes, and how it differs from the other alternatives. If relevant, expand upon the reasons stated above for selecting this alternative for consideration.>>

#### 3.3.1 Cost and Economic Viability

<< Clearly state key cost/economic information for the alternative being discussed. For example:

*The total cost of this alternative is [state cost and timeframe]. It includes Direct, Indirect, and G&A costs for [explain materiel and non-materiel costs included]. Estimates are [explain: confidence in estimates; whether they represent high, medium, or low values; sensitivity (see definition)].>>*

Alternative 2 Life Cycle Costs (dollars in millions)										
Resource Type (DME/O&S) Appropriation	Prior	FY15	FY16	FY17	FY18	FY19	FY20	FY21	To Complete	LCCE
<b>DME</b>		2	2	2	0	0	0	0		6
RDT&E										
Procurement										
O&M										
Other										
<b>O&amp;S</b>		4	4	4	4	4	4	4		28
RDT&E										
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O&M										
Other										
<b>TOTAL</b>		<b>\$6</b>	<b>\$6</b>	<b>\$6</b>	<b>\$4</b>	<b>\$4</b>	<b>\$4</b>	<b>\$4</b>		<b>\$34</b>

*DME = Development, Modernization, or Enhancement*

*O&S = Operations and Sustainment*

**[Notional Data]**

<< If the cost element structure in Appendix B is known, then the DME row in this table will equal the As-Is Investment row from the structure in Appendix B. In the write-up, articulate the appropriations included in the 'Other' rows of this table. It is acceptable to include extra rows for additional appropriations vice summing to 'other.>>

<<Calculate the difference between the Status Quo and the Alternative to estimate the cost delta between the two Alternatives. Negative #'s will show additional cost and positive # will show cost benefit. >>

Alternative 1 (Baseline) Life Cycle Costs minus Alternative 2 Life Cycle Costs (dollars in millions)										
Resource Type (DME/O&S) Appropriation	Prior	FY15	FY16	FY17	FY18	FY19	FY20	FY21	To Complete	LCCE
DME		2	2	2	0	0	0	0		6
RDT&E										
Procurement										
O&M										
Other										
O&S		4	4	4	4	4	4	4		28
RDT&E										
Procurement										
O&M										
Other										
<b>TOTAL</b>		<b>\$6</b>	<b>\$6</b>	<b>\$6</b>	<b>\$4</b>	<b>\$4</b>	<b>\$4</b>	<b>\$4</b>		<b>\$34</b>

*DME = Development, Modernization, or Enhancement*  
*O&S = Operations and Sustainment*

**[Notional Data]**

<<Apply discounting and economic analysis formulas per guidance in Appendix G to develop Economic Viability metrics.>>

Alternative 2 - Economic Viability							
Net Present Value (NPV) =		Break Even (Discounted) =		Benefit Cost Ratio (BCR) =		Return on Investment (ROI) =	

**3.3.2 Requirements Summary**

<< Provide a summary for the alternative discussed. For example:

*This alternative satisfies [all, most, some] known requirements. Its greatest strengths are in [explain what they are and why they are important]. Its greatest limitations are [explain what they are and why they are an issue]. Expectations regarding how well this alternative is expected to satisfy each requirement have been scored and provided in the table below.>>*

<<The table below, should include the key requirements>>

<< Scores and Weights should be developed through a collaborative process with stakeholders and documented in this section. Sum of weights should = 100%.>>

Alternative # 2: Requirements Satisfaction				
Requirement	Score (0 to 5) <sup>1</sup>	Weight <sup>2</sup>	Weighted Score <sup>3</sup>	Rationale
[Describe requirement]				
[Describe requirement]				

**Total Score<sup>4</sup>**

1. Score range is: 0 (does not meet requirement), 1 (minimally meets requirement) to 5 (greatly exceeds requirement).
2. Weighting factor for high priority requirements
3. Weighted score = "score" multiplied by "weight factor"
4. The unweighted and weighted scores are summed to establish the total score

**3.3.3 Qualitative Benefits**

<<Clearly state the nature of any operational impacts the alternative under discussion presents.>> For example:

*This alternative had [significant, moderate, minimal, no] negative operational impacts in the areas of [list], and [significant, moderate, minimal, no] positive benefits in the areas of [list].*

<< Expand on significant issues, areas of concern and/or strengths and how they are likely to affect the success of the project. The table below may be tailored to add/remove operational areas. For example:

*Expectations regarding how this alternative will impact operations are scored below. This list is an example, and will not apply to all projects. The operational areas must be distinct to avoid harmful correlation.>>*

Alternative 2 - Operational Benefits/Impacts		
Operational Area	Score <sup>1</sup>	Rationale
Mission/business function		
Interoperability		
Customer/User benefit		
Efficiency		
Info Assurance/Security		
Reliability/ Quality		
Sustainability		
Other		

**Total Score:**

NOTE 1: Scores range from -5 to +5. Negative scores of -4 or -5 are red; high positive impact scores of +4 or +5 are green.

### 3.3.6 Risk Summary

<<Use narrative to summarize risks. Identify risk management actions and evaluate risk before and after risk management to determine which strategies are likely to have the most impact. Identify costs associated with risk management actions. Include any risks associated with assumptions. For example:

*This alternative has been evaluated to be [high, medium, low] risk. Areas of greatest risk were [list and explain]. Areas of lowest risk were [list and explain]. If actions are taken to [describe risk management actions], it is believed that risk related to [risk factor name] [could or could not] be reduced to an acceptable level because [explain]. >>*

Risk Factor	Pre-Risk Mgmt Analysis			Risk Management Strategy	Post-Risk Mgmt Analysis		
	1. Probability	2. Impact	3. Areas Impacted		1. Probability	2. Impact	3. Areas Impacted
Insufficient Budget	Certain	Catastrophic	C	Divide system into mandatory and desirable features and only implement mandatory features	Possible	Mod	C
Requirement Change	Possible	Mod	C, P, T, S, R	Lock down technical requirements for spiral one on XX date	Possible	Mod	C,P, S, R
Dependency on XXX	Possible	High	S, R, C	Focus on aspects of project that do not depend on system xxx	Possible	Mod	C, S

**[Notional Risk Analysis & Management Examples]**

Risk Table Legend					
4. Probability		5. Impact		6. Areas of Impact	
70-100%	Certain	Project failure	Catastrophic (Cat)	Business:	Programmatic (P)
40-69%	Probable	Failure to meet major requirements, major cost increase or schedule delay	High	IT System:	Technical (T)
5-39%	Possible	Extensive adjustments needed to meet schedule	Moderate (Mod)	Delays & Slippages:	Schedule (S)
Near 0%	Improbable	Minor adjustments needed to meet goals	Low	Staff & Equipment:	Resources (R)
				Funding Shortfall:	Cost (C)

### 3.4 <Short Descriptive Name of Third Alternative> Overview

<< For other alternatives, follow the same structure as above. >>

## 4.0 COMPARISON OF ALTERNATIVES

### 4.1 Comparison of Alternatives' Economic Viability Measures

<<Identify the alternative(s) with the best viability. Assess overall economic viability and provide rationale, taking into consideration: (1) degree of confidence in financial assumptions and estimates, (2) sensitivity of the data, and (3) economic realities such as availability of funds. For example:

*The most economically viable alternative is [alternative number and short name]. Its overall economic viability is assessed as [strong, moderate, weak, not viable] based on [explain].*

<<If only one alternative is being considered, there will only be one set of economic viability measures..>>

Alternative Economic Viability Comparison							Most Viable	
Alternative 2	NPV =		Discounted Payback Pd =		BCR =		ROI =	
Alternative 3	NPV =		Discounted Payback Pd =		BCR =		ROI =	←

### 4.2 Comparison of Costs and Savings

<<Identify the alternative that requires the lowest overall life cycle costs (investment & O&S). For example:

*Of the [number of] alternatives considered, Alternative [number and short name] requires the lowest overall life cycle costs. >>*

Life Cycle Cost Comparison (dollars in millions)											
	Prior	FY15	FY16	FY17	FY18	FY19	FY20	FY21	To Complete	LCCE	Lowest LCC\$
Alternative 1		\$_	\$_	\$_	\$_	\$_	\$_	\$_		\$_	
Alternative 2											←
Alternative 3											

<<Provide the amounts listed in the 'Total' line for each alternative (Sections 3.2.1, 3.3.1, etc.)>>

<<Explain the relationship between lifecycle costs and net cost increase or savings. For example:

*Taking into consideration the overall lifecycle costs required and the net cost increases/savings of each alternative, Alternative [number] is most feasible from a funding availability standpoint and provides a [strong, moderate, or weak] financial benefit and return. If this option is implemented, status quo costs can be reduced by [explain assumptions, amounts, and timeframes] and realigned to help fund the alternative. Additionally, other savings not directly related to the cost of this alternative from [explain other savings if applicable] can be applied to help offset the total cost. >>*

Net Cost Increase or Savings (dollars in millions)											
In millions	Prior	FY15	FY16	FY17	FY18	FY19	FY20	FY21	To Complete	LCCE	Greatest Savings
Alternative 2	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	←
Alternative 3	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	\$/ \$	

Red=budget/cost increase; black = budget decrease (savings)

### 4.3 Comparison of Overall Requirements Satisfaction

<< Compare how each alternative satisfies each requirement. Identify the alternative that best meets overall requirements. Document all methodologies used to make the determinations. For example:



The **[alternative number and name]** most fully satisfies the statutory, functional, and technical requirements specified for this project. Comparative results are provided below.>>

Requirements Comparison				
Requirement	As Is/Alt 1	Alt 2	Alt 3	Alt 4
[Describe requirement]				
[Describe requirement]				
<b>Total Score</b>				
	Best	↑		

#### 4.4 Comparison of Mission and Operational Benefits/Impacts

<<Identify the alternative that has the highest weighted operational score. For example:

[Alternative number and name] has the highest weighted operational score, particularly in the areas of [list areas]. Comparative results are provided below.>>

Operational Benefits/Impacts If Implemented (or not Implemented)								
Operational Area	Unweighted Scores				Weighted Scores			
	As Is/Alt 1	Alt. 2	Alt. 3	Alt.4	As Is/Alt 1	Alt.2	Alt. 3	Alt. 4
Mission/business function								
Interoperability								
Customer/User benefit								
Efficiency								
Info Assurance/Security								
Reliability/ Quality								
Sustainability								
Other								
<b>Total Scores</b>								
	Best		↑				↑	

#### 4.5 Risk Comparisons

<<Identify which alternative offers the lowest risk and which offers the highest risk, and whether risks identified are considered acceptable or not acceptable after risk management efforts. For example:

Post-risk management, [Alternative number and name] appears to have the lowest risk and [Alternative number and name] appears to have the highest risk. Considering the types of risks, their possible impacts and probability of occurring, the risks for [Alternate with lowest risk] after risk management actions are considered [acceptable or not acceptable]. Considering the types of risks, their possible impacts and probability of occurring, the risks for [Alternate with highest risk] after risk management actions are considered [acceptable or not acceptable]. The risk cubes below summarize the risk profiles for each alternative after risk management actions.>>

<< The following risk cubes should be used, and tailored as appropriate.>>

Alternative 1					Alternative 2					Alternative 3							
Alt 1		Probability				Alt 2		Probability				Alt 3		Probability			
		Improb-able	Possible	Probable	Certain			Improb-able	Possible	Probable	Certain			Improb-able	Possible	Probable	Certain
Impact	Cat																
	Hig		C, S, P, T	C				C, R	C					R		C	R
	Me		C					P	S						S		
	Low							S, T									

(Cat = catastrophic)

[Examples here are notional.]

Risk Cube Legend					
Probability		Impact		Areas of Impact	
70-100%	Certain	Project failure	Catastrophic (Cat)	Business	Programmatic (P)
40-69%	Probable	Failure to meet major requirements, major cost increase or schedule delay	High	IT system	Technical (T)
5-39%	Possible	Extensive adjustments needed to meet schedule	Moderate (Mod)	Delays & Slippages	Schedule (S)
Near 0%	Improbable	Minor adjustments needed to meet goals	Low	Staff & Equipment	Resources (R)
				Funding shortfall	Cost (C)
				Contract Issues	Business & Security (V)

### 4.6 Sensitivity Analysis (Optional)

<<The primary objective of Sensitivity Analysis is to determine whether the cost ranking of the alternatives change as a result of varying certain factors. Its value lies in the additional information and understanding it brings to bear on the decision. For decision makers facing an investment decision, sensitivity analysis is a tool for determining how changes in costs or benefits affect the recommendation. Sensitivity Analysis reveals how the cost estimate is affected by a change in a single assumption. It examines the effect of changing one assumption or cost driver at a time while holding all other variables constant. By doing so, it is easier to understand which variable most affects the cost estimate. Consult references in Appendix H for assistance with conducting sensitivity analysis.>>

### 4.7 Other Considerations

<< **Optional.** Explain any other information not previously addressed that should be considered when making a selection recommendation.>>

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Summary Comparison and Recommendation

<<Identify the alternative found to be the best option, discuss merits of each alternative and rationale for recommended alternative, with summary rationale data. For example:

*After performing an analysis of the financial and non-financial benefits and risks of various alternatives, [alternative number and name] is assessed to be the most viable option. It generates the greatest savings [note amount and timeframe], fully satisfies all requirements, provides the greatest operational benefits/impacts, and involves risks that, once managed, are considered acceptable.*

*The following example table summarizes and compares the alternatives across financial and non-financial dimensions.>>*

Overall Comparison of Alternatives	Financial							Non-Financial			Best Option
	NPV	Break Even	BCR	ROI	Cost (FY15-21) \$M	Unfunded (FY15-21) \$M	Savings (FY15-21) \$M	Requirements (Exceeds, Meets, Not Acceptable)	Operational Benefits (Significant, Moderate, Low, None)	Managed Risk (Low, Med, High)	
Alternative 1 (As-Is)	N/A	N/A	N/A	N/A		N/A	N/A				←
Alternative 2											
Alternative 3											

### 5.2 Funding Needs and Sources

<<Identify the total funding required for the recommended alternative. For example:

*The table below identifies the total funding required for the recommended alternative as presented in the alternatives "Cost" section. It includes costs for materiel [list] and non-materiel [list] requirements.>>*

*<<If deltas exist between the 'Total Requirement' and amounts currently programmed/budgeted, identify all off-sets required to fully fund the alternative. Provide additional off-set details in Appendix D.>>*

<<If additional funding is required, explain logical funding sources based on expected cost savings/avoidance. As necessary, provide additional detail re: reprogramming actions in Appendix D. For example:

*This project is expected to generate cost avoidance in the amount of [amount and timeframe] from [describe the efficiency that creates the cost avoidance]. To cover the remaining unfunded costs, funding equal to the cost avoidance could be recouped through budget marks against [state logical source (provide APPN, BA, PE, BLI, and UII)]. If this is done, the final net unfunded amount for this initiative would be [state amount].>>*

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Funding Required/Available <i>(dollars in millions)</i>										
	Prior	FY15	FY16	FY17	FY18	FY19	FY20	FY21	To Complete	LCC
<b>Total Required</b>										
RDT&E										
Procurement										
O&M										
Other										
<b>Currently Programmed/Budgeted</b>										
RDT&E										
Procurement										
O&M										
Other										
<b>Unfunded Requirements (UFR)</b>										
RDT&E										
Procurement										
O&M										
Other										
<b>Off-sets from Reprogramming</b>										
RDT&E										
Procurement										
O&M										
Other										
<b>Off-sets from POM/PBR</b>										
RDT&E										
Procurement										
O&M										
Other										
<b>Off-sets from Cost Savings/Avoidance</b>										
RDT&E										
Procurement										
O&M										
Other										
<b>Final NET Unfunded</b>										
RDT&E										
Procurement										
O&M										
Other										

*POM - Component Program Objectives Memorandum*  
*PBR - DoD Program and Budget Review*

NOTE: Investment (Invest.)" reflects all one-time/non-recurring costs, regardless of appropriation expected to be incurred to implement the preferred alternative. Consists of sustainment costs incurred from the initial system deployment through the end of system operations. Includes all costs of operating, maintaining, and supporting a fielded system. Specifically, this consists of the costs (organic and contractor) of personnel, equipment, supplies, software, and services associated with operating, modifying, maintaining, supplying, and otherwise supporting a system in the DoD inventory.

## APPENDIX A: GLOSSARY

<<These definitions may be augmented/changed as needed to support a particular BCA.>>

Term	Description
<b>Analysis of Alternatives</b>	Evaluation of different choices available for achieving an objective, usually requiring a cost benefit analysis, life cycle costing and sensitivity analysis.
<b>Assumption</b>	An assumption is an informed position about what is believed to be true for a situation where explicit factual knowledge is unobtainable.
<b>Baseline</b>	A description of the beginning condition in measurable terms and a start date from which progress can be measured. Synonymous with As Is and Status Quo.
<b>Benefit-Cost Ratio (BCR)</b>	BCR is the index resulting from dividing discounted benefits (savings/cost avoidances) by discounted investment. Therefore, an initiative must have a BCR > 1.0 to be considered financially viable.
<b>Break Even (B-E)</b>	The fiscal year in which the initiative “breaks-even” based on discounted cash flows, i.e., the point at which the Net Present Value (NPV) becomes positive.
<b>Business Case</b>	A comparative analysis that presents facts and supporting details among competing alternatives. It should be unbiased by considering all possible alternatives and should not be developed solely for supporting a predetermined solution.
<b>Constraint</b>	Constraints are factors known or discovered that are expected to limit the analysis, possible solutions and/or expected outcomes.
<b>Cost Savings</b>	A reduction in costs below the projected (i.e., budgeted) level as a result of a specific initiative. Because cost savings are a reduction in the level of budgeted costs, savings are available to be recouped from the budget.
<b>Cost Avoidance</b>	A reduction in future unbudgeted costs that cannot be recouped from the budget. A cost avoidance in current budgeted years (FYDP) may also result due to increased productivity or other previously unrealized benefits.
<b>Data Characterization</b>	Per the Cloud Security Model. Level 1 = Unclassified publicly releasable. Level 2 = Unclassified publicly releasable with access controls, all FOIA releasable data, information open to public even if it requires a login, low risk, non-sensitive PII. Level 3 = Controlled Unclassified Information – low confidentiality impact, moderate integrity impact. Level 4 = Controlled Unclassified Information – Moderate confidentiality impact, moderate integrity impact, moderate level PII. Level 5 = Moderate confidentiality impact, Moderate integrity impact but Mission essential, critical infrastructure (military or civilian), deployment and troop movement, ITAR data, unclassified nuclear data, Trade Secrets Act data, sensitive PII (medical/HIPAA, personnel, legal, law enforcement, biometric). Level 6 = Classified information up to and including SECRET – Moderate confidentiality impact, Moderate integrity impact e.g., C2 systems, email systems.
<b>Data Impact Level Assessment</b>	A determination of the potential impact (Low, Moderate, or High) to the mission that would result from loss of confidentiality, integrity, and availability if a security breach occurs, IAW the DoD Risk Management Framework.
<b>Development Modernization Enhancement (DME)</b>	Development, Modernization and Enhancement refers to projects and activities leading to new IT assets/systems, as well as projects and activities that change or modify existing IT assets to substantively improve capability or performance, implement legislative or regulatory requirements, or meet an agency leadership request. DME activity may occur at any time during a program’s life cycle. As part of DME, capital costs can include hardware, software development and acquisition costs, commercial off-the-shelf acquisition costs, government labor costs, and contracted labor costs for planning, development, acquisition, system integration, and direct project management and overhead support.

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<b>Direct</b>	Direct costs include costs for hardware, software, communications, labor (sys admin, app spt, help desk, storage admin, data admin, security, hosting), and Enterprise Svc Mgmt/Net Ops.
<b>DOTMLPF</b>	The DOTMLPF acronym is defined by the CJCSI 3170.01G -Joint Capabilities Development System (JCIDS) as: doctrine, organization, training, materiel, leadership and education, personnel and facilities. JCIDS requires all DOTMLPF aspects (materiel and non-materiel) be considered when developing a solution/recommendation.
<b>G&amp;A</b>	General & Administrative costs include costs for internally controlled (personnel & related costs, HW/SW requirements to support headquarters functions, Admin LAN) and external agreements.
<b>Goal</b>	A description of the desired/expected end-state condition.
<b>Indirect</b>	Indirect costs include costs for hosting infrastructure (facility repairs/improvements, conditioned power, full uninterrupted power supply, generated power, heat ventilation & air conditioned services, electric/water/sewage, garbage, and physical security), Field Security Operations, personnel & related costs.
<b>Information System</b>	All DoD-owned or -controlled systems that receive, process, store, display or transmit DoD information, regardless of mission assurance category, classification or sensitivity.
<b>Investment funds</b>	Funding used for non-recurring costs to upgrade, refresh, or modernize existing systems/processes, or new developments.
<b>Mission Impact Assessment</b>	A determination of the mission impact relative to the overall mission of the Department to wage war and defend the nation. Systems/applications that may be of high importance to the specific mission they serve, but are of low impact to the DoD mission, allows different security profiles to be chosen for those systems
<b>Net Present Value (NPV)</b>	NPV is the difference between discounted benefits and discounted costs (i.e., discounted savings/cost avoidances less discounted costs). An initiative must have an NPV > 0.0 to be considered financially viable.
<b>Operating &amp; Sustainment (O&amp;S)</b>	Operations & Sustainment Costs refers to the expenses required to operate and sustain an IT asset that is operating in a production environment. O&S costs include costs associated with operations, maintenance activities, and maintenance projects needed to sustain the IT asset at the current capability and performance levels. It includes Federal and contracted labor costs, corrective hardware and software maintenance, voice and data communications maintenance and service, replacement of broken or obsolete IT equipment, overhead costs, and costs for the disposal of an asset. Also commonly referred to as steady state, current services and operations & maintenance..
<b>Operating &amp; Support (O&amp;S)</b>	All costs to sustain the system/project after it has been released to production (i.e., after deployment or upon achievement of Full Operational Capability (FOC)).
<b>Return on Investment</b>	A performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. To calculate ROI, the benefit (return) of an investment is divided by the cost of the investment.
<b>Sensitivity Analysis</b>	A technique used to determine how different values of an independent variable will impact a dependent variable under a given set of assumptions. It is particularly important to test sensitivity if it is likely the actual outcome will differ from assumptions.
<b>Sunk Costs</b>	Money already spent and permanently lost (past opportunity costs). Generally considered irrelevant to future decision-making.
<b>Target</b>	Expected/planned progress in quantifiable terms towards a specific end-state.
<b>Total Cost of Ownership</b>	Life cycle cost of a system, including all development, acquisition, and operations and support costs.

## APPENDIX B: Cost Element Structure

<< This appendix provides example cost element structures that can be tailored for each unique situation.>>

<<As Is 2d Level Cost Element Structure. As Is is synonymous with Alternative 1/baseline/status quo.>>

CES #	Cost Element Name	Definition
	<b>As Is</b>	Life cycle cost estimate for As Is systems relevant to the To Be Investment under consideration..
<b>1</b>	<b>As Is Investment</b>	Cost estimate for non-recurring efforts of currently funded initiatives relevant to the To Be Investment under consideration.
1.1	Program Management	Cost estimate for Program Management activities for any currently funded efforts relevant to the To Be Investment under consideration. Program Management is defined as business and administrative planning, business process re-engineering, change management, organizing, directing, coordinating, and controlling actions designated to accomplish overall program objectives which are not associated with specific hardware elements and are not included in systems engineering. Includes fully burdened Military, Civilian, and Contractor personnel costs, travel costs, and other relevant costs.
1.2	Concept Exploration	Cost estimate for all costs for concept explorations of currently funded initiatives relevant to the To Be Investment under consideration. Includes costs for study, analysis, design development, and test involved in investigating alternative methods of delivering prototype(s) or end item(s).
1.3	System Development	Cost estimate for all non-recurring costs for currently funded initiatives for development of system relevant to the To Be Investment under consideration. Includes fully burdened costs of military, civilian, and contractor personnel. Includes development hardware and software, Sys T&E, and IV&V.
1.4	System Procurement	Cost estimate for procurement of operational systems developed through currently funded initiatives relevant to the To Be Investment under consideration. Includes hardware and software for prime mission product and COOP elements.
1.5	Data Center Investment	Cost estimate for investment, or lease in lieu of investment, required by any outsource support provider as required for the system to attain and maintain FOC. Includes Capital Investment and Leasing.
1.6	Sys Initiation, Implementation, Fielding	Cost estimate for activities required to train first users of the operational system developed through currently funded initiatives relevant to the To Be Investment under consideration. Includes initial training, system integration/site test acceptance, and engineering changes.
1.7	Upgrade/Pre-Planned Product Improvement	Cost estimate for element currently funded planned enhancements to As Is systems relevant to the To Be Investment under consideration.
<b>2</b>	<b>As Is O&amp;S</b>	Cost estimate for all activities to operate and sustain As Is systems that will remain fully operational throughout the timeframe of the analysis. Includes the cost to manage and maintain prime mission product hardware and software. Includes fully burdened military, civilian, and contractor personnel and travel costs associated with system management. Includes tech/life cycle refresh and maintenance of wide area network, local area network, security architecture and data centers. Includes software operations and support, assurance, and licenses of application, COTS, database, NETOPS, GOTS, and Data Center software. Includes Unit/Site Operations, including labor associated with systems administration, storage administration, database administration, service desk, application support, utilities, facilities, longhaul and intrabase communications, recurring training. Includes security costs such as base/site security/ field security operations, and certification and accreditation. Includes application hosting costs for services such as DISA enterprise services, DISA MiCloud, Commercial Cloud, and Private Cloud.
2.1	System Management	Cost estimate for activities such as business and administrative planning, business process re-engineering, change management, organizing, directing, coordinating, and controlling As Is systems relevant to the To Be Investment under consideration. Does not include objectives associated with specific hardware/software elements or systems engineering.
2.2	Annual Operations Investment / Life Cycle Refresh	Cost estimate for all replacement components, replenishment spares, supplies and consumables required over the life cycle of As Is systems relevant to the To Be Investment under consideration. Includes WAN, LAN, Security Architectures, and Data Center systems. Includes prime mission product and COOP elements.
2.3	Hardware Maintenance	Cost estimate for all labor and material required to restore As Is system hardware to specified performance standards and prevent system malfunctions. Includes WAN, LAN, Security Architectures, and Data Center systems. Includes prime mission product and COOP elements.
2.4	Software O&S	Cost estimate for all labor and material required to restore As Is system software to specified performance standards and prevent system malfunctions. Includes WAN, LAN, Security Architectures, and Data Center systems.
2.5	Unit/Site Operations	Cost estimate for all day to day operations of the As Is system. Includes technical personnel performing system management functions. Includes systems administration, storage administration, database administration, service desk, and application support. Includes utility and facility costs. Includes long haul and intrabase communications. Includes recurring training costs.
2.6	Security	Cost estimate for all labor and material involved in reducing risk of physical and logical damage to the As Is system from outside actors. Includes base/site security, field security operations, and certification and accreditation.
2.7	Application Hosting	Cost estimate for services performed by data centers that host applications in the As Is state. Includes services such as DISA enterprise hosting, DISA MiCloud, Commercial Cloud, and Private Cloud hosting.

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<<Alt n 2-Level Cost Element Structure. To Be is synonymous with Alt n. It may be necessary to tailor a cost element structure for each Alternative to the status quo>>

CES #	Cost Element Name	Definition
	<b>Alt n</b>	Life cycle cost estimate for the To Be state. Includes an Investment phase to implement a new system, a new To Be state operations and support cost, and phase out costs for As Is systems that will be replaced, retired, or divested as a result of the To Be Investment.
<b>1</b>	<b>Alt n Investment</b>	Cost estimate for non-recurring efforts relevant to the To Be Investment.
1.1	Program Management	Cost estimate for Program Management activities for any currently funded efforts required to implement the To Be Investment. Program Management is defined as business and administrative planning, organizing, directing, coordination, controlling, and approval actions designated to accomplish overall program objectives which are not associated with specific hardware elements and are not included in systems engineering. Includes fully burdened Military, Civilian, and Contractor personnel costs, travel costs, and other relevant costs.
1.2	Concept Exploration	Cost estimate for all costs of concept explorations for the To Be Investment. Includes costs for study, analysis, design development, and test involved in investigating alternative methods of delivering prototype(s) or end item(s).
1.3	System Development	Cost estimate for all non-recurring costs for the To Be Investment. Includes fully burdened costs of military, civilian, and contractor personnel. Includes development hardware and software, Sys T&E, and IV&V.
1.4	System Procurement	Cost estimate for procurement of operational systems developed through the To Be Investment. Includes hardware and software for prime mission product and COOP elements.
1.5	Data Center Investment	Cost estimate for investment, or lease in lieu of investment, required by any outsource support provider as required for the To Be system to attain and maintain FOC. Includes Capital Investment and Leasing.
1.6	Sys Initiation, Implementation, Fielding	Cost estimate for activities required to train first users of the To Be operational system. Includes initial training, system integration/site test acceptance, and engineering changes.
1.7	Upgrade/Pre-Planned Product Improvement	Cost estimate for pre-planned enhancements to the To Be system.
<b>2</b>	<b>Alt n O&amp;S</b>	Cost estimate for all activities to operate and sustain the To Be system that will remain fully operational throughout the timeframe of the analysis. Includes the cost to manage and maintain prime mission product hardware and software. Includes fully burdened military, civilian, and contractor personnel and travel costs associated with system management. Includes tech/life cycle refresh and maintenance of wide area network, local area network, security architecture and data centers. Includes software operations and support, assurance, and licenses of application, COTS, database, NETOPS, GOTS, and Data Center software. Includes Unit/Site Operations, including labor associated with systems administration, storage administration, database administration, service desk, application support, utilities, facilities, longhaul and intrabase communications, recurring training. Includes security costs such as base/site security/ field security operations, and certification and accreditation. Includes application hosting costs for services such as DISA enterprise services, DISA MiCloud, Commercial Cloud, and Private Cloud.
2.1	System Management	Cost estimate for activities such as business and administrative planning, organizing, directing, coordinating, and controlling the To Be system that does not include objectives associated with specific hardware/software elements or systems engineering.
2.2	Annual Operations Investment/LCR	Cost estimate for all replacement components, replenishment spares, supplies and consumables required over the life cycle of the To Be system. Includes WAN, LAN, Security Architectures, and Data Center systems. Includes prime mission product and COOP elements.
2.3	Hardware Maintenance	Cost estimate for all labor and material required to restore To Be system hardware to specified performance standards and prevent system malfunctions. Includes WAN, LAN, Security Architectures, and Data Center systems. Includes prime mission product and COOP elements.
2.4	Software O&S	Cost estimate for all labor and material required to restore To Be system software to specified performance standards and prevent system malfunctions. Includes WAN, LAN, Security Architectures, and Data Center systems.
2.5	Unit/Site Operations	Cost estimate for all day to day operations of the To Be system. Includes technical personnel performing system management functions. Includes systems administration, storage administration, database administration, service desk, and application support. Includes utility and facility costs. Includes long haul and intrabase communications. Includes recurring training costs.
2.6	Security	Cost estimate for all labor and material involved in reducing risk of physical and logical damage to the To Be system from outside actors. Includes base/site security, field security operations, and certification and accreditation.
2.7	Application Hosting	Cost estimate for services performed by data centers that host applications in the To Be state. Includes services such as DISA enterprise hosting, DISA MiCloud, Commercial Cloud, and Private Cloud hosting.

<<Alt n Cost Element Structure continued on next page>>



<<Alt n Cost Element Structure continued>

3	<b>Alt n Phase Out O&amp;S</b>	Cost estimate for all activities to operate and sustain As Is system that will be replaced, retired, and/or divested as a result of the To Be Investment. Includes the cost to manage and maintain prime mission product hardware and software. Includes fully burdened military, civilian, and contractor personnel and travel costs associated with system management. Includes tech/life cycle refresh and maintenance of wide area network, local area network, security architecture and data centers. Includes software operations and support, assurance, and licenses of application, COTS, database, NETOPS, GOTS, and Data Center software. Includes Unit/Site Operations, including labor associated with systems administration, storage administration, database administration, service desk, application support, utilities, facilities, longhaul and intrabase communications, recurring training. Includes security costs such as base/site security/ field security operations, and certification and accreditation. Includes application hosting costs for services such as DISA enterprise services, DISA MilCloud, Commercial Cloud, and Private Cloud.
3.1	System Management	Cost estimate for activities such as business and administrative planning, organizing, directing, coordinating, and controlling the As Is system that will be replaced, retired, and/or divested as a result of the To Be Investment. that does not include objectives associated with specific hardware/software elements or systems engineering.
3.2	Annual Operations Investment/LCR	Cost estimate for all replacement components, replenishment spares, supplies and consumables required over the life cycle of the As Is system that will be replaced, retired, and/or divested as a result of the To Be Investment. Includes WAN, LAN, Security Architectures, and Data Center systems. Includes prime mission product and COOP elements.
3.3	Hardware Maintenance	Cost estimate for all labor and material required to restore the As Is system that will be replaced, retired, and/or divested as a result of the To Be Investment hardware to specified performance standards and prevent system malfunctions. Includes WAN, LAN, Security Architectures, and Data Center systems. Includes prime mission product and COOP elements.
3.4	Software O&S	Cost estimate for all labor and material required to restore As Is system that will be replaced, retired, and/or divested as a result of the To Be Investment software to specified performance standards and prevent system malfunctions. Includes WAN, LAN, Security Architectures, and Data Center systems.
3.5	Unit/Site Operations	Cost estimate for all day to day operations of the As Is system that will be replaced, retired, and/or divested as a result of the To Be Investment. Includes technical personnel performing system management functions. Includes systems administration, storage administration, database administration, service desk, and application support. Includes utility and facility costs. Includes long haul and intrabase communications. Includes recurring training costs.
3.6	Security	Cost estimate for all labor and material involved in reducing risk of physical and logical damage to the As Is systems that will be replaced, retired, and/or divested as a result of the To Be Investment from outside actors. Includes base/site security, field security operations, and certification and accreditation.
3.7	Application Hosting	Cost estimate for services performed by data centers that host applications in the As Is systems that will be replaced, retired, and/or divested as a result of the To Be Investment. Includes services such as DISA enterprise hosting, DISA MilCloud, Commercial Cloud, and Private Cloud hosting.

## APPENDIX C: REQUIREMENTS

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<<This appendix provides additional detail regarding requirements, including those resulting from the DOTMLPF analysis, lean six sigma and business process reengineering efforts, and change management planning. Additional detail is expected to be added to this appendix over the duration of the project as more information is known and requirements can be more clearly defined.>>

<<Clearly state the analyses performed, information sources and benchmarks used, etc. For example:

*A DOTMLPF<sup>1</sup>, process reengineering and other analyses were performed to identify the materiel and non-materiel requirements for this [project, acquisition, investment]. Information collected from [name of Stakeholder/ User Group forum] comprised of [identify areas of expertise and/or organizations that participated] that met from [dates] was used to determine functional requirements. Information from lean six sigma projects conducted by [state who and when] was used to identify current process root cause issues. Operations at [give example] were used as benchmarks to determine labor and other non-materiel requirements. Materiel and technical requirements were gathered from [sources]. General requirements are summarized below.>>*

### Statutory, Regulatory and other Compliance Requirements

<<Identify any statutory, regulatory, compliance requirements and/or organizational strategic goals and objectives this project/initiative must satisfy. Include as a reference all known statutory and regulatory requirements, specific to the IT functional area, known at the time of publishing. Include Enterprise Architecture and Information Assurance requirements as applicable.>>

### Functional Requirements

<<Summarize functional requirements. Focus particularly on requirements necessary to achieve desired outcomes and measureable performance objectives. >>

### Materiel, Technical and Interface/Data Exchange Requirements

<<Summarize general materiel requirements (e.g., equipment, hardware, software, apparatus, and supplies of the project), related technical requirements and interface/data exchange requirements to the level of detail needed to do a valid comparison of alternatives. A summary table may be appropriate. All material requirements associated with Direct, Indirect and G&A costs need to be included. Material requirements associated with Direct costs include hardware, software, and communications. Material requirements associated with Indirect costs include Hosting infrastructure (facility repairs/improvements, conditioned power, full uninterrupted power supply, generated power, heat ventilation & air conditioned services, electric/water/sewage/garbage, physical security). Material requirements associated with G&A costs include hardware and software requirements to support headquarters functions and External Agreements. >>

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<sup>1</sup> CJCSI 3170.01G Joint Capabilities Integration and Development System of 7 Mar 2011 requires, military planners to perform an analysis of needs associated with doctrine, organizational changes, training, materiel requirements, leadership and education, personnel and/or facilities – referred to as a DOTMLPF analysis -- before authorizing a new course of action. The DOTMLPF analysis results are reflected in this business case in various sections including: the scope, requirements, operational impacts, risks, key enablers, project plan, deliverables and life cycle costs.

## Labor, Contractor Support and Non-Materiel Requirements

<<Summarize non-materiel requirements (e.g., doctrine/policy/guidance, organizational changes, training requirements, new governance/leadership activities, new/matrixed personnel requirements and skills, and facilities) necessary to ensure success of the project. All labor requirements associated with Direct, Indirect and G&A costs need to be included, including Military, Civilian and Contractor labor costs. Labor costs include systems administration, application support, help desk, storage administration, data administration, security, hosting, and Enterprise Service Management/Network Operations. If critical requirements have been excluded from the scope of the BCA, they should be identified and the rationale for not including them explained. Ensure the project scope and the cost estimates of the alternatives correctly reflect both materiel and non-materiel requirements. >>

## Process Reengineering Requirements

<<Explain process reengineering efforts and identify which requirements listed above correct “as-is” process weaknesses/gaps to create a streamlined and more efficient solution. >>

## Data Impact Level Assessments

### DoD Data Characterization within the 6 levels of the Cloud Security Model for Data Impact Level Assessment:

**Level 1:** Unclassified publicly releasable information; e.g., recruiting websites.

**Level 2:** Unclassified publicly releasable information, with access controls, all FOIA releasable data, information open to the public even if it requires a login, low risk, non-sensitive PII (name, business or personal address, phone, and email); e.g., morale systems or library systems.

**Level 3:** Controlled Unclassified Information (CUI) – Low confidentiality impact, Moderate integrity impact, Non-Appropriated Fund (NAF) data that does not include health or legal data, and educational systems that fall under The Family Educational Rights and Privacy Act (FERPA), contracting data that does not contain Trade Secrets Act information; e.g., training systems.

**Level 4:** Controlled Unclassified Information (CUI) – Moderate confidentiality impact, Moderate integrity impact, moderate level PII (social security numbers, alien ID and other immigration documents, passport numbers, driver’s license numbers, VIN numbers, and license plates); e.g., HR systems

**Level 5:** NSS CUI – Moderate confidentiality impact, Moderate integrity impact but Mission essential, critical infrastructure (military or civilian), deployment and troop movement, ITAR data, unclassified nuclear data, Trade Secrets Act data, and sensitive PII (medical/HIPAA, personnel, legal, law enforcement, and biometric data)

**Level 6:** Classified information up to and including SECRET – Moderate confidentiality impact, Moderate integrity impact e.g., C2 systems, email systems.

## Mission Impact Assessment

In addition to the characterization of data within the 6 levels of the cloud security model, the impact of a particular mission or business function on the overall mission of the Department is another factor that can influence the risk management process.

The overall mission of the Department of Defense is to provide the military forces needed to deter war and to protect the security of our country. The following Mission Impacts are defined relative to the DoD's overall mission.

**Mission Impact - High**

A compromised mission is expected to have a high impact on DoD's overall mission to deter war and protect the security of our country e.g., DoD missions and operations continue under any cyber situation or condition.

**Mission Impact - Moderate**

A compromised mission is expected to have a moderate impact on DoD's overall mission to deter war and protect the security of our country.

**Mission Impact - Low**

A compromised mission is expected to have a low impact on DoD's overall mission to deter war and protect the security of our country.

## APPENDIX D: OFF-SET DETAIL

### Funding Requirements

<<Describe total funding required and available via below threshold reprogramming (BTR), above threshold reprogramming (ATR), or POM/PBR sources for the recommended alternative. Reprogramming actions should only be used to correct execution year shortfalls. Provide details in the below format. >>

Current 'As-Is' Program (dollars in millions)															
	APPN	BA	PE	BLI	UII	Prior	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	To Complete	LCCE	
	<b>Total</b>														
Off-Sets or Reprogramming Actions (dollars in millions)															
Action Required	APPN	BA	PE	BLI	UII	Prior	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	To Complete	LCCE	
	<b>Total</b>														

<<In the 'Action Required' column, using the codes below, indicate how the off-set will be resourced.

- 'BTR' – Below Treshold Reprogramming action
- 'ATR' – Above Treshold Reprogramming action
- POM/PBR – DoD programming/budget action during the Component POM or DoD Program Budget Review processes. >>

'To-Be' Program (dollars in millions)															
	APPN	BA	PE	BLI	UII	Prior	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	To Complete	LCCE	
	<b>Total</b>														
	Sum of 'As-Is' Program and Off-set/Reprogramming Sources														
APPN - Appropriation															
BA - Budget Activity															
PE - Program Element															
BLI - Budget Line Item															
UII - Unique Investment Identifier from DITIP/SNaP-IT															

<<Articulate the risks of Off-set and reprogramming actions not being approved. If not approved, what is the strategy for this alternative going forward?>>

## APPENDIX E: PROJECT PLAN

<< This appendix includes a detailed project plan or a link to it. This section will change over the course of the project and is **mandatory after initial BCA approval**.>>

### Implementation Plan and Deliverables

<<Provide a high level implementation plan that includes key deliverables and milestones. For example:

*A high-level Implementation Plan with major deliverables and key milestones is provided below. Consider scheduling for development and approvals of change management plan, stakeholder plan, communications plan, and training plan. A more detailed plan will be developed within [number] days after initial approval from the [decision authority name] and will be appended to this document in Appendix E. Guidance on Work Breakdown Structure can be found in MILSTD 881..>>*

Implementation Plan for FY20XX								
Deliverables (D) & Milestones (MS)		Date Due	Qtr2	Qtr 3	Qtr 4	FY15	FY16	Beyond
D	Charter		X					
D	POAM			X				
D	Develop standard process			X				
D	Develop draft policy						X	
MS	FOC							X

[Notional Example]

### Key Enablers and Leadership Support

<< If there are any specific decisions/actions required of leadership to ensure the project's success, identify them in this section (e.g., governance changes, dependencies on other projects, new policies or process improvements that require other organizations' buy-in/support, major change management obstacles, critical risk management activities, etc.) For example:

*The following areas require [decision body's name] attention and support in order to ensure the success of this project: [list areas]. >>*

## APPENDIX F: PERFORMANCE MEASURES

<<Provide additional detail explaining how the performance measure baseline values were calculated and why certain targets and goals were established. If there are dependencies between the measures, explain them. For example, goals for “speed” may have negative impacts on “quality.” Likewise, goals for “cost savings” may negatively affect “customer service.” Where dependencies exist, measures for both attributes should be collected and monitored. Explain how the measures data will be collected, who is responsible for collecting/reporting them, how often they will be collected, and where the information will be stored. Measures information will be updated over the course of the project and most likely will not be fully developed at time of initial approval.>>

<<NOTE: Measures to track progress during project execution are probably different than measures used to assess project success after delivery.>>

<<Measures should clearly relate to strategic/mission requirements, desired outcomes, benefits, timeframe, costs, and savings. For example: *Performance measures in the table below will be used to track and assess project progress. These measures were selected because [explain why these measures were selected and if additional measures will be added in the future]. Additional detail can be shown in table similar to the example below.>>*

Performance Measures						
Strategic Goal/Outcome	Related Measure	Baseline Amt and Date	Goal at FOC and Date	Target Amt and Date	Measure Frequency	Org Lead
Reduce costs	Reduce total cost of _____ by 10%	\$7M (as of ___)	\$6.3M by ___	\$6.8M by ___	Annually	
Improve decision support	Reduce % of records with data errors by 50%				Monthly	

## APPENDIX G: ECONOMIC VIABILITY ASSESSMENT

Calculation of Economic Viability metrics for each alternative will require application of discounting the change in Net Cost Increase or Savings for each year with a discount factor that varies by year per one of the formulas below. The current discount rate is found on OMB Circular A-94 Appendix C, [http://www.whitehouse.gov/omb/circulars\\_a094/a94\\_appx-c](http://www.whitehouse.gov/omb/circulars_a094/a94_appx-c)

Mid-year discount factor:  $F=1/((1+R)^{(Y-.5)})$ , where F is the discount factor, R is the discount rate written as a decimal, and Y is the sequence number of the year in question, beginning at program inception. The formula produces a unique factor for each year in an analysis. Mid-year discounting applies when costs and benefits occur in a steady stream.

Mid-monthly discount factor: For analyses of short periods, monthly factors may be more appropriate:  $F = 1/(RM^{(M-.5)})$ , where F is the discount factor, M is the sequence number of the month in question, and RM is the discount rate on a monthly basis, i.e., the 12th root of (1+R), or  $RM = (1+R)^{(1/12)}$ .

End-of-year discount factor:  $F=1/((1+R)^{(Y)})$ , where F is the discount factor, R is the discount rate written as a decimal, and Y is the sequence number of the year in question, beginning at program inception. End-of-year discounting applies when costs and benefits occur as lump sums at the beginning of the year

NPV (Net Present Value) = Discounted Benefits – Discounted Costs

Benefit Cost Ratio (BCR) = Discounted Benefits / Discounted Investment Costs

Return On Investment (ROI) = (Discounted Benefits – Discounted Investment Costs) / Discounted Investment Costs

The break-even point, or payback, is the point (e.g., number of years or fractional years) at which the cumulative costs (investment plus sustainment) of two alternatives are equal. At this point the savings in current dollars from the comparison of alternatives will equal the investment in current dollars (Sunk costs are not considered in the computation.). The break-even point is computed using a comparison of costs between alternatives which identifies cumulative savings. Breakeven analysis is normally performed using undiscounted current dollars. Break-even analysis is most commonly used in decision making when projects are high risk, and it is desirable to recover investment costs quickly, or when it is desirable for political reasons to quickly generate economic benefits.



## APPENDIX H: REFERENCE DOCUMENTS

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Clinger-Cohen Act

OMB Cir No. A-94, OMB Guidelines and Discount Rates for BCA for Federal Programs

GAO Cost Estimating and Assessment Guide, Chapter 14, Cost Risk and Uncertainty, Chapter 13, Sensitivity Analysis, <http://www.gao.gov/new.items/d093sp.pdf>

DoDD 5000 Series

DoDI 7041.3

DoDD 8120.1

DoD Acquisition Risk Management Guide

DoD Product Support BCA Guidebook

AFI 65-509, Business Case Analysis

[http://static.e-publishing.af.mil/production/1/saf\\_fm/publication/afi65-509/afi65-509.pdf](http://static.e-publishing.af.mil/production/1/saf_fm/publication/afi65-509/afi65-509.pdf)

AFMAN 65-510, Business Case Analysis Procedures

[http://static.e-publishing.af.mil/production/1/saf\\_fm/publication/afman65-510/afman65-510.pdf](http://static.e-publishing.af.mil/production/1/saf_fm/publication/afman65-510/afman65-510.pdf)

Army CBA Guide, pg 64 Sensitivity Analysis,

<http://asafm.army.mil/Documents/OfficeDocuments/CostEconomics/guidances/cba-gd.pdf>

Army Economic Analysis Manual, Appendix H, Discounting example,

<https://acc.dau.mil/adl/en-US/46515/file/13820/CEAC%20Econ%20Anal%20Manual%20Feb%2002.pdf>

DON Economic Analysis Guide, Chapter 9, Uncertainty and Risk Analysis,

<https://www.ncca.navy.mil/references.cfm>

SECDEF Memo of 27 Dec 2010, Subject: Consideration of Costs in DoD Decision-Making

(<http://www2.dla.mil/j-6/dlms0/Archives/Finance/meetings/13Mar12/OSD14152-10-Cost-Memo.pdf>)

<< Also add references to support documentation used to prepare the BCA. Supporting documentation examples can include files that capture the cost data, calculations, methodology and data references that were used to create the estimate. It can also include concept of operations, requirements documentation, implementation/transition plans, stakeholder plan, communications plan, acquisition strategies, maintenance concepts, technological assumptions, procurement schedules, fielding schedules, software release schedules, product support plans, lifecycle support plans, etc >>



**DEPARTMENT OF DEFENSE  
BUSINESS CASE ANALYSIS**