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|  |  | ***Acquisition Management System Guidance*** | |
| **Initial (*or* Final) Business Case Template for New Investment** | | |  |

**July 2017**

Federal Aviation Administration

800 Independence Avenue SW

Washington, DC 20591

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|  |  | **Federal Aviation**  **Administration** | |
|  |  |  | |
|  |  | (Date) | |
| **Initial (*or* Final) Business Case for**  **(*Name of proposed new investment*)** | | |  |

Enterprise Architecture Roadmap Statement #

Approved by: Date:

Vice President (ATO) or Director (Non-ATO) of

Sponsoring Service Organization

Contact Point

*Name*

*Organizational Code*

*Phone Number*

*FAX Number*

Federal Aviation Administration

800 Independence Avenue SW

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**SUPPORTING DOCUMENTS**

Lifecycle Cost Estimate

Basis of Estimates

Benefits Analysis Report

Shortfall Analysis Report

Acquisition Program Baseline (Final Business Case)

PMO Risk, Issues, and Opportunities Management Plan (Final Business Case)

*For initial investment analysis, the initial business case analysis considers at least three alternative approaches for achieving the desired capability. In each case, the alternatives are evaluated against the legacy case or status quo in terms of lifecycle cost, operational benefits, and risk. For final investment analysis, the final business case analysis thoroughly analyzes the alternative selected at the initial investment decision including procurement alternatives.*

*This template may be tailored by the IP&A Business Case Review Group depending on the nature of the initiative. Requests for tailoring should be made very early in the investment analysis process.*

*All guidance documents cited in this template can be found on the IP&A website at* [*http://www.ipa.faa.gov*](http://www.ipa.faa.gov) *or the FAA Acquisition Management System Toolset at* [*http://fast.faa.gov*](http://fast.faa.gov)*.*

**EXECUTIVE SUMMARY**

*Summarize the key information in this document, highlighting those elements that are most relevant to the Joint Resources Council when making investment decisions. Include the following: A brief summary of the operational shortfall or opportunity; a brief description of the alternatives (initial business case) or the recommended alternative (final business case); a comparative lifecycle cost, schedule, benefits, risk, economic, and affordability summary for the alternatives (initial business case) or final cost, benefits, schedule, risk, economic, and affordability values for the recommended alternative (final business case); a short summary of the impact on FAA capability if the shortfall is delayed or not funded.*

# InVESTMENT dESCRIPTION

Briefly describe the proposed initiative. Identify how it contributes to the Next Generation Air Traffic System (NextGen or NGATS) Program and FAA strategic goals. Briefly describe the key operational capabilities the new investment will provide. These capabilities should address the shortfalls or opportunities in Section 2.0: Problem Statement.

# ProblemStatement

Briefly describe the operational shortfalls or technical opportunities associated with the current operational capability. Identify the key drivers for this investment initiative and support each with technical, operational, or legislative information. Use and update the information in Section 1 of the Final Shortfall Analysis Report produced during concept and requirements definition. Express the information succinctly so a busy executive can quickly understand the need for the initiative.

Explain why this investment must be approved now. This is the basis for your analysis presented in Section 8: Impact if not Funded or Delayed.

# ****Assumptions****

*List the key assumptions and conditions having major influence on the business case analysis and its conclusions. The list should include as a minimum:*

* The assumed remaining service life and disposition date of the existing capability;
* The assumed required implementation date for the proposed investment;
* The assumed service life of the proposed investment; and
* The future operational environment.

*See “Business Case Analysis Guidance, Appendix B” for definitions of assumptions, constraints, and conditions at* [*http://www.ipa.faa.gov*](http://www.ipa.faa.gov)*.*

# Business Case Analysis

*List and briefly describe the technical alternatives that were analyzed.* *Summarize the evaluation criteria and their relative weighting used in evaluating each alternative.*

*See Business Case Analysis Guidance, Appendix A, Table A-1 for business case analysis requirements by ACAT at* [*http://www.ipa.faa.gov*](http://www.ipa.faa.gov)*.*

## **4.1** **Lifecycle Cost Estimate**

*A full risk-adjusted lifecycle cost estimate is required for all New Initiative investments at both the initial and final investment decisions. For the initial investment decision, lifecycle costs are captured for all alternatives. For the final investment decision, the lifecycle cost estimate is updated and finalized for the alternative selected for implementation at the initial investment decision. Parametric and analogy cost-estimating techniques may be applied during initial investment analysis. The final cost estimate developed during final investment analysis should be based on actual cost data from vendors responding to the request for offers for the solution.*

*Use the following table (or appropriate variation) to summarize the lifecycle costs for each alternative. Briefly summarize the cost analysis conducted to generate high-confidence lifecycle cost estimates. Summarize the sensitivity analysis performed on key cost drivers and the effect of technical, schedule, and risk on the cost estimates. Present cost estimates in risk-adjusted then-year dollars. Reference the Life Cycle Cost Estimate and Cost Basis of Estimate.* *Include values for only the alternative selected for implementation for the final investment decision.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Alternative** | **Total F&E Cost**  RATY $ | **Total OPS Cost**  **RATY $** | **Total Cost**  **RATY $** |
| Alternative 1 Descriptor |  |  |  |
| Alternative 2 Descriptor |  |  |  |
| Alternative 3 Descriptor |  |  |  |

Total F&E cost includes all development, procurement, deployment, support, and infrastructure costs.

Total OPS cost includes all operational and support costs over the intended service life.

RATY – Risk-Adjusted Then Year

*This section should also include a budget summary chart for each alternative (initial investment decision) or the recommended solution (final investment decision) containing both acquisition (F&E) and operational (OPS) costs in then-year risk-adjusted dollars.*

*Further information on the development of cost estimates, risk and uncertainty analysis, or budget summary can be found in the “Guide to Conducting Business Case Cost Evaluations” at http://www.ipa.faa.gov.*

## **Benefits Analysis (Quantitative/Qualitative)**

*Use the following table (or appropriate variation) to summarize the lifecycle benefit estimate for each alternative. For an initial investment decision, the summary should provide enough information to show the differentiation and relative merits of each alternative. For the final investment decision, the summary should provide more accurate information for the alternative selected for implementation based on vendor proposals, more in-depth analysis, and less uncertainty about the proposed investment*

|  |  |  |
| --- | --- | --- |
| **Alternative** | **Quantitative Benefits** | **Qualitative Benefits** |
|  |  |  |
| Alternative 1 Descriptor |  |  |
| Alternative 2 Descriptor |  |  |
| Alternative 3 Descriptor |  |  |

*Describe briefly the analytical activity undertaken to generate high-confidence lifecycle benefit estimates for each alternative****.*** *Include the benefits analysis as an attachment.*

* 1. **Schedule Analysis**

*For the initial business case, provide a risk-adjusted implementation schedule for each alternative. Briefly explain the key assumptions and analysis used in developing the schedules including the reasons for substantive differences between them. For the final business case, update the schedule for the solution selected for implementation.*

*See “Guide to Conducting Business Case Schedule Evaluations” at* <http://www.ipa.faa.gov>*.*

## **Risk and Sensitivity** **Analysis**

### Risk Analysis

*Business case risk analysis is an objective assessment of each alternative to determine the probability of an undesirable event occurring during implementation and the significance of the consequence of the occurrence. It is a process in which a group of programmatic, technical, and analytical specialists review the cost and benefit estimates, as well as supporting ground rules, assumptions, and the basis of the estimates. If the analysis indicates an undesirable event may arise, the potential impact(s) resulting from such an occurrence are evaluated. At a minimum, the areas of risk to be analyzed for each alternative are: costs, benefits, schedule, and technical.*

*For the initial investment decision, summarize the overall risk rating associated with each alternative in a comparative risk assessment matrix. Evaluate the likelihood of occurrence and consequence of each* ***major*** *risk for each alternative and summarize the results. Estimate the cost to mitigate major risks associated with each alternative and include in the respective cost estimate in Section 4.1.*

*For the final investment decision, summarize the overall risk rating for the alternative selected for implementation in a 5 X 5 risk matrix. Evaluate the likelihood of occurrence and consequence of each major risk and summarize the results. Develop a risk mitigation plan and include mitigation costs in the lifecycle cost estimate for the solution.*

### Issues and Opportunities

*Summarize major issues that have been identified, analyzed, and incorporated into the business case, as well as any opportunities that would have a positive impact on the initiative and FAA service delivery. For ATO initiatives, reference the PMO Risk, Issues, and Opportunities Management Plan.*

*See “Guide to Conducting Business Case Risk Assessments” at* [*http://www.ipa.faa.gov*](http://www.ipa.faa.gov)

### Sensitivity Analysis

*Sensitivity analysis involves changing key parameters in the cost model to test their effect on cost variation. In order for sensitivity analysis to reveal how the cost estimate is affected by a change in a single assumption, the cost estimator must examine the effect of changing one assumption or cost driver at a time while holding all other variables constant. Perform the sensitivity analysis on key design cost drivers to determine their impact on cost. Sensitivity analysis includes:*

* *Testing the sensitivity of cost elements to changes in input values and key assumptions*
* *Determining the effects of changing quantities and program schedule on the overall cost estimate*
* *Determining which assumptions are key cost drivers and which cost elements are affected most by changes*

*Use the following table to identify the key parameters on which a sensitivity analysis was performed and summarize their impact on cost. Briefly explain how key parameters were varied to determine these impacts*

|  |  |
| --- | --- |
| **Key Parameter** | **Cost Impact** |
|  |  |
|  |  |
|  |  |
|  |  |

## **Economic Analysis**

*Economic analysis is the process of translating the cost/benefit analysis into net-present-value and other financial statements about FAA investments. Economic analysis provides a systematic approach by which the FAA determines what investments it should pursue and how they should be accomplished. The FAA generally uses benefit-cost ratio, net present value, and payback period as the standard criteria for deciding whether an investment can be justified on economic principles.*

*Summarize in the sections below the analysis conducted for each technical alternative or proposed investment. Include benefit-cost ratio, net present value, and payback period as a minimum.****Refer to the “Guide to Conducting Business Case Economic Evaluations” located at*** [*http://www.ipa.faa.gov*](http://www.ipa.faa.gov)***.***

### ****Cost-Benefit Analysis****

*For each technical alternative, weigh the total expected costs against the total expected benefits. Include the designated discount rate per OMB guidelines to calculate the present-value cost and benefits based on risk-adjusted estimates for benefits and costs.*

### ****Net Present Value****

*Net present value indicates an investment’s net value in today’s dollars. All costs and benefits are adjusted to "present value" by using discount factors to account for the time value of money. Net present value is a way of making commensurable the costs and benefits that occur in different years. It is the algebraic combination of the present value of costs and benefits. OMB Circular A-94 establishes net present value as the standard criterion for deciding whether investment costs can be justified on economic principles.*

*Net present value forecasts when an investment will generate sufficient cash flows to repay the invested capital and provide the required rate of return on that capital. Because all cash flows are discounted back to the present time, net present value compares the difference between the present value of benefits and costs, and takes into account what the investment costs to get these benefits.*

***Show the*** *monetized value of a future stream of expected net benefits and costs* ***discounted to the present by the current desired rate of return for each alternative in the table below.***

|  |  |  |  |
| --- | --- | --- | --- |
| **Alternative** | **Present Value of Benefits** | **Present Value of Costs** | **Net Present Value** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

### ****Payback Period****

*The payback period helps to answer the question: How long will it take to make back the money spent on the investment? This is beneficial information to decision-makers because out-year benefits are often less certain than benefits that occur early in the lifecycle. The payback period represents the time required for cumulative savings from the investment to equal the cumulative cost of the investment. In other words, the payback period measures the time (i.e., years, months) needed to recover the initial investment and break even. Record the payback period for each alternative in the table below.*

|  |  |
| --- | --- |
| **Alternative** | **Payback Period** |
|  |  |
|  |  |
|  |  |

*Briefly explain here the assumptions and calculations used to determine the length of time required to recover the cost of each alternative.*

*For additional information on these analyses please see GAO Cost Estimating and Assessment Guide found at* [*http://www.ipa.faa.gov*](http://www.ipa.faa.gov)*.*

# ****AFFORDABILITY ANALYSIS****

*Send the estimates of lifecycle cost for each alternative to FAA Finance. This office assesses the budget impact and relative contribution to agency goals of each alternative against other ongoing and proposed investment programs in the FAA financial baseline. When an alternative solution cannot be funded within the financial baseline, FAA Finance may propose offsets from lower priority programs. The budget impact assessment shapes subsequent deliberations of the business case analysis team.*

*Summarize findings and recommendations of the affordability analysis here.*

# ****RELATED ASSESSMENTS****

*Depending on the nature of the investment, some or all of the following assessments may be appropriate:*

* *Architecture Impact Assessment*
* *Human Engineering/Operability Assessment*
* *Information and System Security Assessment (see AMS Policy Section 4.11 on FAST)*
* *Environment and Occupational Safety and Health Assessment*
* *Other Specialty Engineering Assessments.*

*Summarize findings here.*

*See the IP&A website (*[*http://www.ipa.faa.gov*](http://www.ipa.faa.gov)*) for information on these assessments.*

# Recommendation

*State your recommendation and supporting rationale (i.e., affordability, benefits, improvements in operational efficiency or effectiveness, cost savings, schedule, risk, etc.) here.*

# Impact if Not Funded OR DELAYED

*Briefly state what will happen if the effort is delayed or not funded (Reference the Legacy Case Risk Assessment in the final Shortfall Analysis Report). Summarize the impact on other initiatives or operational assets dependent on this initiative.*

# Procurement Strategy

*Identify the recommended contract alternative, if any, and summarize the rationale for the recommendation*.

**APPENDICES**

**Appendix A: Business Case Analysis Team Members**

*Use the following table to identify the organization and briefly define the role of each business case analysis team member.*

|  |  |  |
| --- | --- | --- |
| **Name** | **Organization** | **Role** |
|  |  |  |
|  |  |  |

**Appendix B: References**

*Use the following table to list references and documents used in analyzing the business case. Examples include the basis of estimate for lifecycle costs and benefits, and documentation of related assessments. Each reference should include the documentation title, originating organization, and date.*

|  |  |  |
| --- | --- | --- |
| **Document Title** | **Originating Organization** | **Date** |
|  |  |  |
|  |  |  |

**SUPPORTING DOCUMENTS**

**Final Shortfall Analysis Report**

**Life Cycle Cost Estimate**

*Attach the lifecycle cost estimate for each alternative (initial business case) or recommended solution (final business case) in risk-adjusted “base-year” and “then-year” dollars to include solution implementation and in-service management for the intended service life.*

**Acquisition Program Baseline** (Final Business Case only)

**Benefits Analysis Report**

**PMO Risk, Issues, and Opportunities Management Plan** (ATO initiatives only)