

AMS/FAST CHANGE REQUEST (CR) COVERSHEET

Change Request Number: 20-40

Date Received: 5/22/20

Title: Revise Test and Evaluation Master Plan (TEMP) AMS Policy

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Policy and Guidance: (check all that apply)

- Policy
- Procurement Guidance
- Real Estate Guidance
- Other Guidance
- Non-AMS Changes

Summary of Change:

AMS Policy Sections 2.5 and 4.4 were slightly revised. Specific sections are identified below.

Reason for Change:

The modifications clarify requirements for Test and Evaluation Master Plan (TEMP) development. Specifically, TEMPs are required for all investment programs unless tailoring or a waiver is approved. In addition, TEMPs are developed in support of the PRD and therefore should be delivered in conjunction with the PRD (not prior).

Development, Review, and Concurrence:

ANG-B13, ANG-E5A

Target Audience:

T&E practitioners and program stakeholders

Briefing Planned: Yes.

ASAG Responsibilities: Review and comment.

Section / Text Location:

- Section 2.5.1 Investment Analysis - What Must Be Done
- Section 4.4.2 Test and Evaluation - Solution Implementation

The redline version must be a comparison with the current published FAST version.

I confirm I used the latest published version to create this change / redline

or

This is new content

Links:

<https://fast.faa.gov/docs/acquisitionManagementPolicy/AcquisitionManagementPolicy2.5.pdf>

<https://fast.faa.gov/docs/acquisitionManagementPolicy/AcquisitionManagementPolicy4.4.pdf>

Attachments:

Redline and final versions attached.

Other Files:

N/A

Redline(s):

2.5.1 What Must Be Done

4.4.2 Solution Implementation

Acquisition Management Policy - (7/2020)

2.5 Investment Analysis Revised 4/2013

2.5.1 What Must Be Done Revised ~~4/2019~~7/2020

2.5.2 Outputs and Products Revised 1/2010

2.5.2.1 Initial Investment Analysis Revised 4/2013

2.5.2.2 Final Investment Analysis Revised 4/2019

2.5.3 Who Does It? Revised 7/2015

2.5.4 Who Approves? Revised 4/2013

2.5.5 Initial Investment Decision Added 4/2013

2.5.6 Final Investment Decision Added 4/2019

2.5 Investment Analysis Revised 4/2013

Investment analysis is a disciplined process that supports sound capital investment decisions. Investment analysis is conducted in the context of the enterprise architecture and FAA strategic goals and objectives. Such plans serve as guides to prioritize current and future investment analyses. Investment analyses, in turn, help to refine and mature those plans by providing decision-makers with a clear picture of investment opportunities and their risks and value.

NAS and Mission Support roadmaps in the enterprise architecture establish when an operational capability or service need must be in place. This, in turn, determines when investment analysis should be complete to allow sufficient time to acquire and deploy a suitable solution. The key is to balance timeliness, complexity, and size of the investment analysis with the rigorous development of quantitative data needed by the Joint Resources Council to make an informed investment decision.

Affordability and accurate cost and schedule estimates are important factors in the decision to approve a new investment program. The results of investment analysis help the Joint Resources Council determine which potential investments will improve operations across the air transportation system and by how much. The outcome of investment analysis can be used to make individual, portfolio, and prioritization decisions.

When the investment initiative is an element of an operational capability (NAS only), the capture team for the capability (if established) participates in and contributes to investment analysis activity. The capture team is populated with representatives from each service team or program office that will provide an increment of the overall operational capability. They ensure the alternative emerging from initial investment analysis for each increment fits within the strategy for obtaining the operational capability and can provide the necessary performance and functionality.

A nonmateriel solution that emerges during investment analysis may proceed to solution implementation upon approval of solution requirements and implementation and resource planning, if it meets the following criteria:

- Satisfies the need;
- Can be achieved within approved budgets; and is
- Operationally acceptable to the user.

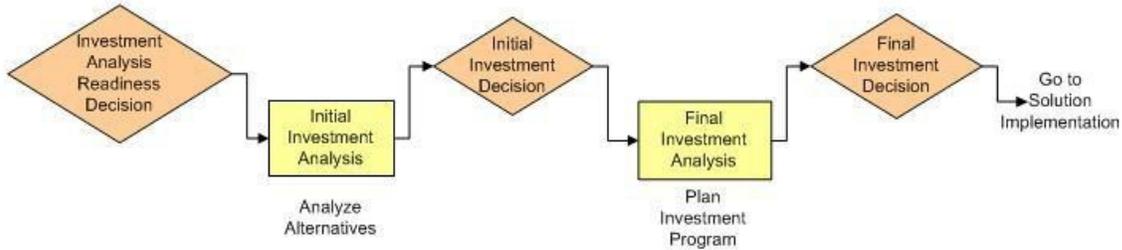
This determination is made by the Vice President or Director of the service organization with the service need with the concurrence of the FAA Enterprise Architecture Board.

All proposed investments must answer the same basic questions:

- What is the problem that needs to be addressed or resolved?
- What is the range of alternatives that could address this problem?
- What are the costs, benefits, and risks associated with each alternative?
- Based on the above, what is the recommended course of action?

Figure 2.5-1 illustrates the phases and decision points of investment analysis. Initial investment analysis evaluates alternative solutions to service needs, and recommends the most promising for further development. Final investment analysis develops detailed cost and benefits estimates, detailed plans, and final requirements for the most promising alternative.

Figure 2.5-1 Phases and Decision Points of Investment Analysis



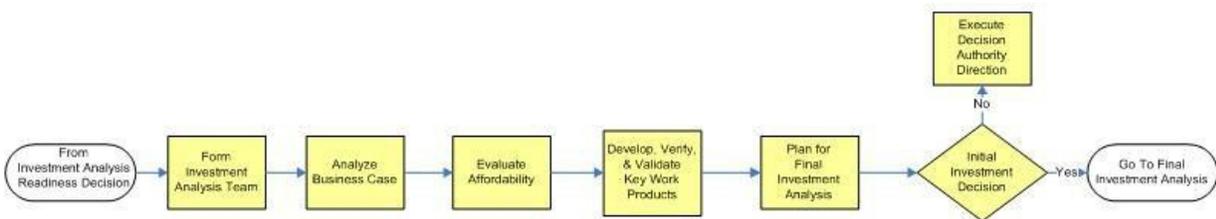
The level of activity required during investment analysis is based on the acquisition category assigned to the investment opportunity. In general, the larger and more complex an investment, the greater the level of effort required during investment analysis.

Very complex investment programs are structured into manageable, lower-risk segments and approved incrementally by the Joint Resources Council. When sequential segments are required to fully implement an investment opportunity, the service organization conducts final investment analysis for each segment and brings planning and baseline documents to Joint Resources Council for approval.

2.5.1 What Must Be Done Revised 4/2019/2020

Figure 2.5.1-1 defines the key activities that must be completed during initial investment analysis. The Investment Analysis Process Guidelines on FAST describe the full range of activities that may be required.

Figure 2.5.1-1 Key Activities of Initial Investment Analysis



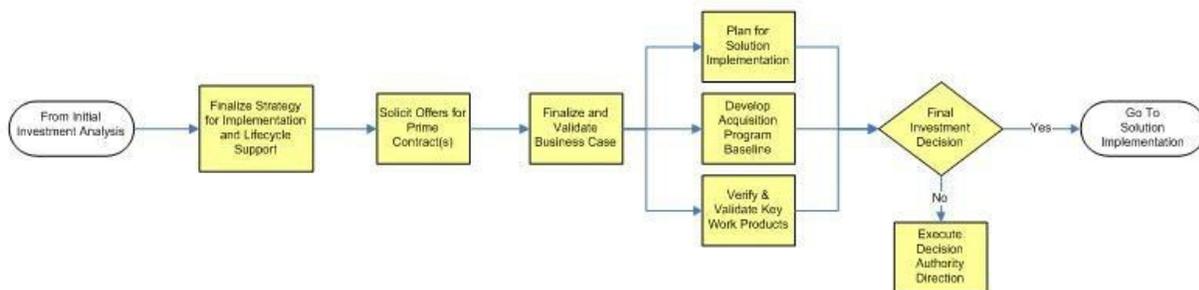
- **Form Investment Analysis Team.** An investment analysis team is formed and scaled to the size and complexity of the analysis. Team membership is flexible depending on the needs of the analysis, but typically includes system, technical, logistics, specialty engineering, testing, and operational subject-matter experts, and business case analysts. Security and regulatory

specialists are team members when potential solutions involve facility, asset, personnel, or information security; hazardous materials; emergency operations; or when they impact aircraft, airspace, or the public.

- **Analyze Business Case.** The business case focuses on those key factors that demonstrate value and worth of a proposed investment initiative to the FAA and the aviation industry. This includes updating the preliminary requirements document to reflect any changes resulting from the investment analysis. ~~For new investments (in accordance with the ACAT determination form),~~ The test organization develops a preliminary test and evaluation master plan based upon the concepts and ~~functions~~ requirements documented in the ~~preliminary~~ initial program requirements document (iPRD) to support the initial investment decision. When the investment initiative is an increment necessary to achieve an operational capability, the impact on achieving the capability is also a key factor of the business case. See the Business Case Analysis Guidance for more details.
- **Evaluate Affordability.** FAA Finance 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. The impact assessment may shape subsequent deliberations of the investment analysis team.
- **Develop, Verify, and Validate Key Work Products.** Validation of the business case is described in the Business Case Evaluation and Assessment Guide. Verification and validation for all other documentation is described in the FAA AMS Lifecycle Verification and Validation Guidelines. The full list of work products that may be required for the initial investment decision is found on the JRC Secretariat website.
- **Plan for Final Investment Analysis.** The plan for final investment analysis defines work activities, resources, schedules, roles and responsibilities, and products. It also specifies exit criteria and a planning date for the final investment decision. See Investment Analysis Plan Guidance and Template for more details.

Figure 2.5.1-2 defines the key activities that must be completed during final investment analysis. The Investment Analysis Process Guidelines on FAST describe the full range of activities that may be required.

Figure 2.5.1-2 Key Activities of Final Investment Analysis



- **Finalize Strategy for Implementation and Lifecycle Support.** The implementing service organization or program office develops a detailed strategy for procuring, implementing, and supporting the solution over its service life with input from the

investment analysis team. This strategy is the foundation for a request for offer to industry for procurement of the solution and all subsequent program planning. ~~For new investments, in support of the final investment decision,~~ The test service organization develops an initial test and evaluation master plan (TEMP)~~(in accordance with the ACAT determination form)~~ that is based on the approved final program requirements document,~~(fPRD)~~. The TEMP describes the test ~~program~~ strategy and scope for the investment program, establishes the basis for test requirements in the request for offer to industry, and establishes test costs/schedules in the acquisition program baseline or the execution plan.

- **Solicit Offers For Prime Contract(s).** The implementing service organization or program office prepares an independent government cost estimate, releases a request for offers, and evaluates industry responses for completeness, technical suitability, and compliance with the statement of work. The most acceptable industry response forms the basis for the final business case and acquisition program baseline or execution plan.
- **Finalize and Validate Business Case.** The business case and supporting documents are prepared according to the ACAT designation for the solution. These requirements are found in the appropriate business case template located on the investment analysis page in FAST. This includes preparation of the final requirements document.
- **Plan for Solution Implementation.** The investment analysis team develops realistic plans for solution implementation using the FAA standard work breakdown structure and a tailored in-service review checklist. Planning must cover all key aspects of obtaining the solution so costs are reflected in resource documents and the acquisition program baseline or execution plan. The program implementation strategy is recorded in the implementation strategy and planning document. The program management plan specifies how the service organization or program office will execute the implementation strategy and defines the roles and responsibilities of key stakeholders.
- **Develop Acquisition Program Baseline or Execution Plan.** The acquisition program baseline or execution plan establishes the cost, schedule, and key performance baselines for the investment initiative. It is the agreement between the implementing service organization or program office and the Joint Resources Council concerning the performance that will be obtained and the timeframe and resources agreed to by the agency. For some investment types (e.g., facilities, service contracts, variable quantities), an execution plan is developed in lieu of an acquisition program baseline.
- **Verify and Validate Key Work Products.** Investment Planning and Analysis validates the business case as described in Business Case Evaluation and Assessment Guide. Verification and validation for all other program work products is according to the FAA AMS Lifecycle Verification and Validation Guidelines. The full list of work products that may be required for the final investment decision is found on the JRC Secretariat website.

See detailed guidance for [investment analysis](#). In all cases, organizations conducting investment analysis must apply the standard processes and guidelines located in the investment analysis section of FAST.

2.5.2 Outputs and Products Revised 1/2010

2.5.2.1 Initial Investment Analysis Revised 4/2013

The principal output for initial investment analysis is information that enables the Joint Resources Council to select the best alternative that meets the required performance and offers the greatest value to the FAA and its customers. The following are required products:

- Updated program requirements document;
- Initial business case;
- Initial implementation strategy and planning documents for each alternative; and
- Plan for final investment analysis.

Key work products are verified and validated according to the FAA AMS Verification and Validation Guidelines before the initial investment decision.

2.5.2.2 Final Investment Analysis Revised 4/2019

The principal output for final investment analysis is detailed planning for the alternative selected for implementation. The following are required products:

- Acquisition program baseline or execution plan;
- Final program requirements document;
- Final business case;
- Final implementation strategy and planning document;
- Program management plan; and
- Updated architecture products and amendments.

Key work products are verified and validated according to the FAA AMS Verification and Validation Guidelines before the final investment decision.

2.5.3 Who Does It? Revised 7/2015

Organization	Responsibilities
Investment analysis team	<ul style="list-style-type: none"> <input type="checkbox"/> Performs the activities and prepares the outputs and products of investment analysis
Implementing service organization or program office	<ul style="list-style-type: none"> <input type="checkbox"/> Typically leads the investment analysis team <input type="checkbox"/> Coordinates with stakeholders throughout investment analysis
Investment Planning and Analysis	<ul style="list-style-type: none"> <input type="checkbox"/> Provides standards, guidance, training, and consulting services to ensure consistency in the conduct of investment analyses <input type="checkbox"/> Provides analysts who may lead, conduct, or review business cases as agreed to in the investment analysis plan <input type="checkbox"/> Verifies and validates the business case for both NAS and Mission Support investments

Stakeholder organizations	<input type="checkbox"/> Participate as team members throughout investment analysis
Capture team (NAS only)	<input type="checkbox"/> Contributes to investment analysis activity when the investment initiative is an element of an operational capability <input type="checkbox"/> Ensures the recommended alternative can provide the performance and functionality necessary to achieve the overall operational capability
Test service organization	<input type="checkbox"/> Develops the preliminary and initial test and evaluation master plan

2.5.4 Who Approves? Revised 4/2013

Approval authorities for the products of investment analysis are found in AMS Appendix B, Acquisition Planning and Control Documents.

2.5.5 Initial Investment Decision Added 4/2013

At the initial investment decision, the Joint Resources Council selects the best alternative for implementation or rejects all alternatives and specifies what action is needed next.

If the Joint Resources Council approves an alternative, it:

- Selects an alternative for implementation;
- Approves entry into final investment analysis;
- Approves funding for any analytical or developmental work related to the selected alternative; and
- Designates a service organization to lead final investment analysis and be responsible for solution implementation.

Alternatives can be rejected if the technology is not mature or when requirements are not sufficiently defined. If rejected, the Joint Resources Council can approve such actions as research, further analysis, development, or termination.

When the initial investment decision involves an investment initiative that is an element of an operational capability, the portfolio manager attends to explain the interrelationships among capability elements and the impact of not approving the initiative on the overall operational capability.

The Joint Resources Council uses the following standard selection criteria when making the investment decision:

- Lifecycle costs;
- Benefits;
- Risk;

- Benefit to cost ratio;
- Consistency with the FAA enterprise architecture; and
- Impact on FAA strategic goals.

2.5.6 Final Investment Decision Added 4/2019

The Joint Resources Council makes the final investment decision. If the Joint Resources Council disapproves the recommendation, it returns the investment package with specific instructions for further work or terminates the effort. If the Joint Resources Council accepts the recommendations, it:

- Approves the investment program for implementation and delegates responsibility to the appropriate service organization or program office;
- Approves the final program requirements document, final business case, and the implementation strategy and planning document;
- Approves the acquisition program baseline or execution plan;
- Commits the FAA to funding the program segment, as specified in the acquisition program baseline or execution plan;
- Approves updated architecture products and amendments; and
- Approves adjustments to FAA plans and budgets to reflect the investment decision.

Before the Joint Resources Council approves documents at the initial or final investment decisions, the documents require approval from other officials, as can be found in AMS Appendix B, Acquisition Planning and Control Documents.

When a final investment decision involves an investment initiative that is an element of an operational capability, the portfolio manager attends to explain the interrelationships among capability elements and the impact of not approving the initiative on the overall operational capability.

Acquisition Management Policy - (7/2020)

[4.4 Test and Evaluation](#) Revised 7/2016

[4.4.1 Service Analysis, Concept and Requirements Definition, and Investment Analysis](#)
Revised 4/2019

[4.4.2 Solution Implementation](#) Revised ~~7/2016~~7/2020

[4.4.3 In-Service Management](#) Revised 7/2016

4.4 Test and Evaluation Revised 7/2016

Test and evaluation is planned and conducted in accordance with the guidelines, standards, and practices found on the FAA Acquisition System Toolset (FAST) to:

- Provide essential information in support of decision-making for investment programs;
- Provide essential information for assessing technical and investment risks;
- Verify the attainment of technical performance specifications and objectives; and
- Verify and validate that systems, solutions, and capabilities are operationally effective and suitable for the intended use.

The types of test and evaluation standards and processes to be followed for each investment program are based on the milestones and decision points they support and the type of investment program. These test and evaluation standards and processes address: NAS new investment, NAS modifications, and Mission Support programs.

The high-level test strategy is defined in the implementation strategy and planning document. The program management plan specifies how the test strategy will be executed. Based on complexity and criticality, new investments may be required to deliver a test and evaluation master plan (TEMP), as indicated on the ACAT designation form. For designated investment initiatives, the TEMP provides more detail than the ISPD and the PMP on contractor and FAA test needs, scope, planning and reporting.

The test and evaluation approach, level of analysis, and test criteria are determined by reporting requirements for program milestones and decisions. The requirements that need to be verified and validated form the basis for test criteria. The risks and complexity of the system, solution, or capabilities being tested drive the scope and robustness of evaluation methods, test cases, and reporting structure.

4.4.1 Service Analysis, Concept and Requirements Definition, and Investment Analysis Revised 4/2019

During service analysis, test and evaluation activities help identify and prioritize critical FAA service needs. During concept and requirements definition, test and evaluation helps to identify the best alternative solutions to those needs. During investment analysis, the criteria for testing operational effectiveness and suitability are expressed as critical performance requirements and critical operational issues in the program requirements document.

For investment programs designated to have a test and evaluation master plan a preliminary TEMP (pTEMP) is developed during initial investment analysis based on the concepts and functions documented in the preliminary program requirements document to support the initial investment decision. An initial TEMP (iTEMP) is developed during final investment analysis once program requirements are finalized and the identity of the most promising solution is known. The iTEMP describes the test program and establishes the basis for test requirements in the request for offer to industry and test costs/and schedules in the acquisition program baseline or execution plan. The

iTEMP is required to support the final investment decision. The ISPD and PMP define the plan and schedule for delivery of the final TEMP (fTEMP).

4.4.2 Solution Implementation Revised 7/2016/2020

Solution implementation activities follow documented and structured T&E processes appropriate to the systems, solutions, and capabilities being tested. Early test and evaluation activity assesses potential operational, safety, and security risks and identifies opportunities for risk mitigation. Later test and evaluation examines performance and operational readiness (suitability and effectiveness) in support of decision-makers at the production, deployment, and in-service decisions.

Each test and evaluation program consists of developmental, operational and site testing as specified in the fTEMP (~~if required~~) and associated PMP and ISPD, as well as independent operational assessment for designated programs (see AMS Section 4.5). Developmental testing verifies requirements, functional design, and integration of the system, solution, or capability. Operational testing validates achievement of operational needs, as well as the effectiveness and suitability of the solution. For deployable products site testing verifies and validates requirements, design, and suitability of the solution in the fielded environment and configuration. As part of site testing, field familiarization testing may be required to support the site operational readiness decision.

4.4.3 In-Service Management Revised 7/2016

Developmental, operational and site testing are performed in accordance with documented, structured test processes defined by each in-service management organization in accordance with FAA Orders and Acquisition Management System Policy guidance. This applies to development and implementation of all NAS and Mission Support modifications during the in-service management lifecycle phase. In-service management test processes include standard test approaches that define the phases and detailed activities to be included during testing. These processes also support/and ensure that safety risk management and information system security requirements are addressed.