CHANGE REQUEST COVER SHEET

Change Request Number: 12-64   **Date Received:** 9/10/2012

Title: Service Analysis and CRD Policy

Name: David Woodson

Phone: 202-267-7601

Policy OR Guidance: Policy

Section/Text Location Affected: AMS policy sections 2.3.2 and 2.3.4

Summary of Change: This policy change reflects recently approved changes to the Guidelines for Service Analysis and Concept and Requirements Definition

Reason for Change: This change is in response to JRC-mandated changes, AEB ACAT guidance that requires different levels of analysis for prospective investments depending on their ACAT level, as well as realignment of organizational responsibilities.

Development, Review, and/or Concurrence: AEB, ASAG

Target Audience: Acquisition management workforce

Potential Links within FAST for the Change: AMS policy sections 2.3.2 and 2.4.2

Briefing Planned: No

ASAG Responsibilities: None

Potential Links within FAST for the Change: AMS policy sections 2.3.2 and 2.4.2

Links for New/Modified Forms (or) Documents (LINK 1)

Links for New/Modified Forms (or) Documents (LINK 2)

Links for New/Modified Forms (or) Documents (LINK 3)

SECTIONS EDITED:

Section 2.3.4 : Concept and Requirements Definition

Old Content: Acquisition Management Policy:
Section 2.3.4 : Concept and Requirements Definition

All investment opportunities that require funding outside the scope of an approved acquisition program baseline undergo concept and requirements definition. This includes upgrades or replacements to existing capability without approved investment funding.

Concept and requirements definition translates priority operational needs in the enterprise architecture into preliminary requirements and a solution concept of operations for the capability needed to improve service delivery. It also quantifies the service shortfall in sufficient detail for the definition of realistic preliminary requirements and the estimation of potential costs and benefits. Finally, concept and requirements definition identifies the most promising alternative solutions able to satisfy the service need, one of which must be consistent with the conceptual framework in the enterprise architecture.

Planning for concept and requirements definition begins when a roadmap in the enterprise architecture specifies action must be taken to address a priority service or infrastructure need. These needs typically relate to existing or emerging shortfalls in the "as is" architecture or essential building blocks of the "to be" architecture. Should a service organization wish to pursue an investment opportunity not in an enterprise architecture roadmap, it must first develop
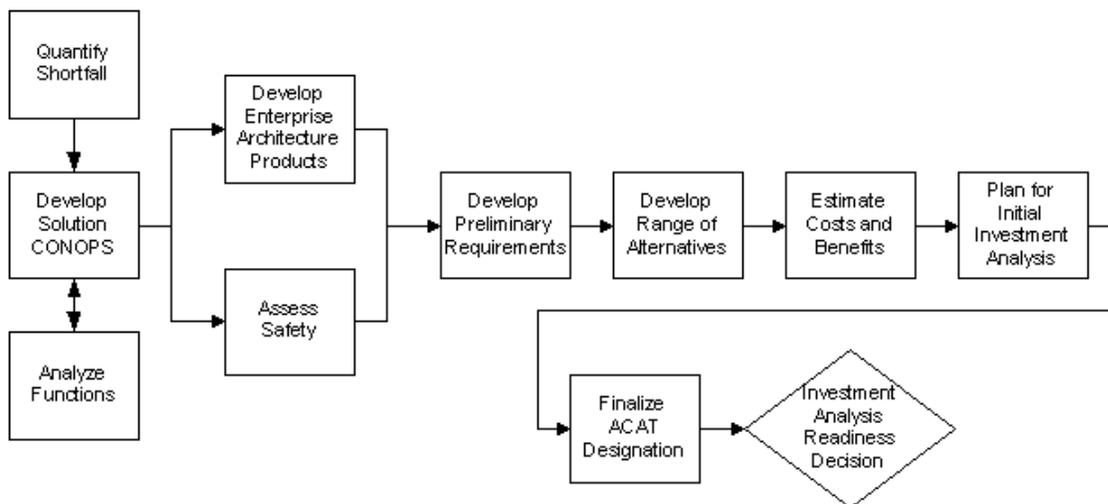
architectural change products and amendments and get endorsement from the appropriate architectural review board.

The FAA may undertake research activity or employ research by other agencies or industry to define the operational concept, develop preliminary requirements, demonstrate and refine computer-human interfaces, reduce risk, or achieve customer buy-in to potential solutions to mission need.

A nonmaterial solution that emerges during concept and requirements definition may be implemented without proceeding further in the lifecycle management process, provided it satisfies the need, can be achieved within approved budgets, and is acceptable to users and customers. This determination is made by the Vice President or Director of the service organization with the mission need with the concurrence of the appropriate enterprise architecture control board.

The key activities of concept and requirements definition are shown in Figure 2.3.4-1.

Figure 2.3.4-1 Key Activities of Concept and Requirements Definition

Note: The activity flow diagram specifies what must be done during concept and requirements definition. The scope and order of work may be adjusted for each investment initiative.

New Content: Acquisition Management Policy:
Section 2.3.4 : Concept and Requirements Definition

All investment opportunities that require funding outside the scope of an approved acquisition program baseline undergo concept and requirements definition. This includes upgrades or replacements to existing capability without approved investment funding.

Concept and requirements definition translates priority operational needs in the enterprise architecture into preliminary requirements and a solution concept of operations for the capability needed to improve service delivery. It also quantifies the service shortfall in sufficient detail for the definition of realistic preliminary requirements and the estimation of potential costs and benefits. Finally, concept and requirements definition identifies the most promising alternative solutions able to satisfy the service need, one of which must be consistent with the conceptual framework in the enterprise architecture.
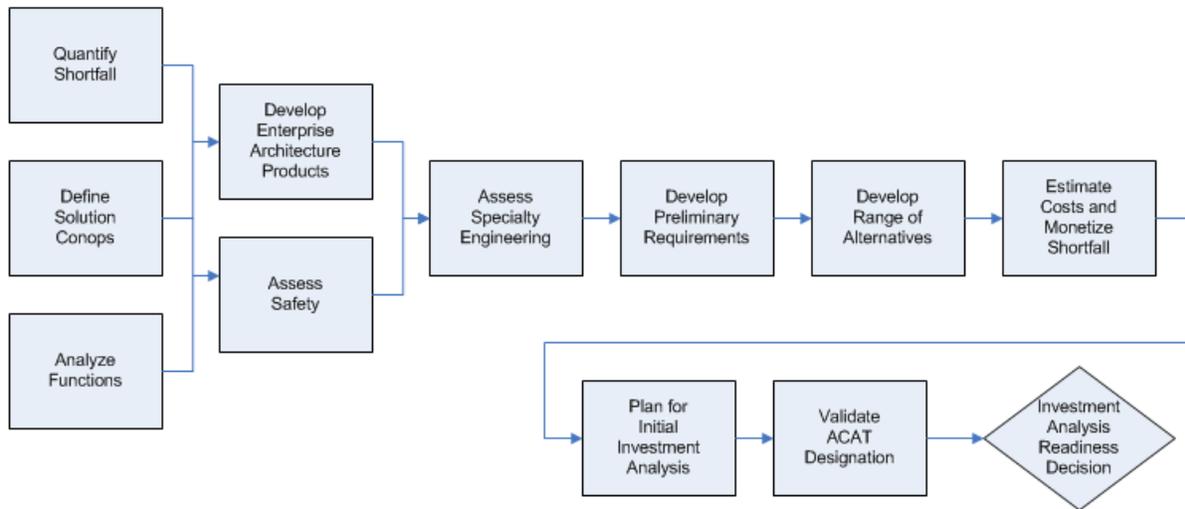
Planning for concept and requirements definition begins when a roadmap in the enterprise architecture specifies action must be taken to address a priority service or infrastructure need. These needs typically relate to existing or emerging shortfalls in the "as is" architecture or essential building blocks of the "to be" architecture. Should a service organization wish to pursue an investment opportunity not in an enterprise architecture roadmap, it must first develop architectural change products and amendments and get endorsement from the FAA Enterprise Architecture Board.

The FAA may undertake research activity or employ research by other agencies or industry to define the operational concept, develop preliminary requirements, demonstrate and refine computer-human interfaces, reduce risk, or achieve customer buy-in to potential solutions to mission need.

A nonmaterial solution that emerges during concept and requirements definition may be implemented without proceeding further in the lifecycle management process, provided it satisfies the need, can be achieved within approved budgets, and is acceptable to users and customers. This determination is made by the Vice President or Director of the service organization with the mission need with the concurrence of the appropriate enterprise architecture control board.

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Red Line Content: Acquisition Management Policy:
Section 2.3.4 : Concept and Requirements Definition

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Figure 2.3.4-1 Key Activities of Concept and Requirements Definition

Note: The activity flow diagram specifies what must be done during concept and requirements definition. The scope and order of work may be adjusted for each investment initiative.

Section 2.3.4.1 : What Must Be Done

Old Content: Acquisition Management Policy:
Section 2.3.4.1 : What Must Be Done

NOTE: The plan for concept and requirements definition must be approved by the Vice Presidents (ATO) or Directors (non-ATO) of the service organization with the mission need and the operating service organization before the start of any CRD activity (see AMS Section 2.3.2.1). Roadmap planning in the enterprise architecture specifies when concept and requirements definition activity must begin.

- **Quantify shortfall.** The service organization updates and refines the preliminary shortfall identified during service analysis in sufficient detail to serve as the basis for (1) clearly understanding the nature, urgency, and impact of the service need; (2) defining preliminary requirements; (3) determining realistic and economic alternative solutions; and (4) quantifying likely program costs and benefits.
- **Define solution concept of operations.** The solution concept of operations describes how users will employ the new capability within the operational environment and how it will satisfy service need. It defines the roles and responsibilities of key participants (e.g., controllers, maintenance technicians, pilots); explains operational issues that system engineers must understand when developing requirements; identifies procedural issues that may lead to operational change; and establishes a basis for identifying alternative solutions and estimating their likely costs and benefits. More than one solution concept of operations may be required if proposed alternative solutions differ significantly from each other.
- **Analyze functions.** The service organization works with the appropriate systems engineering organization to translate stakeholder needs in the shortfall analysis, solution concept of operations, and SR-1000 (NAS System Requirements) into high-level functions. These high-level functions are then decomposed sequentially into lower-level sub-functions. A function is an action or activity that needs to be performed to achieve the desired service outcome. This activity establishes the foundation for defining preliminary requirements and alternative solutions.

- **Develop enterprise architecture products.** The service organization engages with the appropriate enterprise architecture organization to develop architecture products and amendments. These include the operational (business rule) and systems (engineering) view families.
- **Assess safety.** The service organization works with NextGen Engineering Services to assess operational safety of the proposed initiative. This assessment supports definition of preliminary safety requirements. The service organization also identifies, assesses, and documents operational hazards and risks associated with potential alternative solutions. No alternative is pursued whose operational risk cannot be mitigated to an acceptable level at affordable cost.
- **Develop preliminary requirements.** The solution CONOPS, functional analysis, shortfall analysis, enterprise architecture products, and operational safety assessment are the foundation for defining preliminary program requirements. Preliminary requirements specify how well the new capability must perform its intended functions. Safety, security, and human factors are key disciplines that must be considered. Preliminary requirements specify only function and performance, and do not define a solution. They must be expressed such that the degree to which different solutions satisfy them can be measured and evaluated. Research and analysis or even prototyping may be necessary to define preliminary requirements adequately.
- **Develop range of alternatives.** Developing a range of distinct alternatives increases the likelihood that the best possible solution will be selected to satisfy the service need. The service organization surveys the marketplace to identify feasible and economic solutions. Both material and non-material alternatives are evaluated. One solution must be the hypothesized "best" alternative in the enterprise architecture. Key factors to consider are safety, operational cost efficiencies, technological maturity, and impact on the workforce and enterprise architecture. Alternatives should be qualitatively different from each other (e.g., different technologies such as ground-based versus airborne solutions or different acquisition strategies such as developmental versus commercially available). Low risk, cost-effective, and operationally suitable commercial or non-developmental solutions are preferred. Alternatives may not meet 100 percent of preliminary requirements. Technical descriptions are developed for each. When a new capability involves information processing and storage, use of cloud computing is considered and results of this cloud suitability assessment are documented.
- **Estimate costs and benefits.** Rough lifecycle costs and benefits are developed for each preliminary alternative as a basis for determining whether it should be retained or eliminated from consideration. Rough lifecycle costs and benefits are also calculated for sustaining the legacy case in service. The availability of funding is considered by the investment decision authority when determining whether to pursue this service need in competition with all other service needs.
- **Plan for initial investment analysis.** The plan for initial investment analysis: (1) defines scope and assumptions; (2) describes alternatives and their associated rough lifecycle costs and benefits; (3) defines organizational roles and responsibilities; (4) specifies a target schedule; and (5) estimates resources needed for the work. By signing the plan for investment analysis, the organizations that will conduct the analysis agree to provide the resources necessary to complete the work. This activity includes development of the investment analysis readiness decision package, verification that the key products of

concept and requirements definition are complete and high quality, and pre-briefings to decision-makers.

- **Finalize ACAT designation.** The service team prepares the final acquisition category determination request based on information generated during concept and requirements definition. The request is submitted to the Acquisition Executive Board for a designation at least one month before the investment analysis readiness decision.

New Content: <u>Acquisition Management Policy</u>:
Section 2.3.4.1 : What Must Be Done

NOTE: The plan for concept and requirements definition must be approved by the Vice Presidents (ATO) or Directors (non-ATO) of the service organization with the mission need and the operating service organization before the start of any CRD activity (see AMS Section 2.3.2.1). Roadmap planning in the enterprise architecture specifies when concept and requirements definition activity must begin.

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- **Define solution concept of operations.** The solution concept of operations describes how users will employ the new capability within the operational environment and how it will satisfy service need. It defines the roles and responsibilities of key participants (e.g., controllers, maintenance technicians, pilots); explains operational issues that system engineers must understand when developing requirements; identifies procedural issues that may lead to operational change; and establishes a basis for identifying alternative solutions and estimating their likely costs and benefits. More than one solution concept of operations may be required if proposed alternative solutions differ significantly from each other.
- **Analyze functions.** The service organization works with the appropriate systems engineering organization to translate stakeholder needs in the shortfall analysis, solution concept of operations, and SR-1000 (NAS System Requirements) into high-level functions. These high-level functions are then decomposed sequentially into lower-level sub-functions. A function is an action or activity that needs to be performed to achieve the desired service outcome. This activity establishes the foundation for defining preliminary requirements and alternative solutions.
- **Develop enterprise architecture products.** The service organization engages with the appropriate enterprise architecture organization to develop architecture products and amendments. These include the operational (business rule) and systems (engineering) view families.
- **Assess safety.** The service organization works with NAS Systems Engineering to assess operational safety of the proposed initiative. This assessment supports definition of preliminary safety requirements. The service organization also identifies, assesses, and documents operational hazards and risks associated with potential alternative solutions.

No alternative is pursued whose operational risk cannot be mitigated to an acceptable level at affordable cost.

- **Assess Specialty Engineering.** All information that will be collected, transmitted, processed, or stored by this initiative must be assessed according to its impact on confidentially, integrity, and availability. This assessment is the basis for preliminary security requirements. Initiatives that require the use of radio frequencies for data transmission must consult with the NAS spectrum organization to plan for that requirement. Key work products of concept and requirements definition (e.g., solution CONOPS, preliminary requirements document, preliminary alternatives descriptions) are verified and validated before the readiness for investment analysis decision.

- **Develop preliminary requirements.** The solution CONOPS, functional analysis, shortfall analysis, enterprise architecture products, and operational safety assessment are the foundation for defining preliminary program requirements. Preliminary requirements specify how well the new capability must perform its intended functions. Safety, security, and human factors are key disciplines that must be considered. Preliminary requirements specify only function and performance, and do not define a solution. They must be expressed such that the degree to which different solutions satisfy them can be measured and evaluated. Research and analysis or even prototyping may be necessary to define preliminary requirements adequately.

- **Develop range of alternatives.** Developing a range of distinct alternatives increases the likelihood that the best possible solution will be selected to satisfy the service need. The service organization surveys the marketplace to identify feasible and economic solutions. Both material and non-material alternatives are evaluated. One solution must be the hypothesized "best" alternative in the enterprise architecture. Key factors to consider are safety, operational cost efficiencies, technological maturity, and impact on the workforce and enterprise architecture. Alternatives should be qualitatively different from each other (e.g., different technologies such as ground-based versus airborne solutions or different acquisition strategies such as developmental versus commercially available). Low risk, cost-effective, and operationally suitable commercial or non-developmental solutions are preferred. Alternatives may not meet 100 percent of preliminary requirements. Technical descriptions are developed for each. When a new capability involves information processing and storage, use of cloud computing is considered and results of this cloud suitability assessment are documented.

- **Estimate costs and monetize shortfall.** Rough lifecycle costs are developed for each preliminary alternative as a basis for determining whether it should be retained or eliminated from consideration. Rough lifecycle costs are also calculated for sustaining the legacy case in service. A rough estimate of the shortfall (also called "monetizing the shortfall") is developed to provide a reference for evaluating the potential benefits the initiative may provide. A detailed benefit estimate is created during investment analysis. The availability of funding is considered by the investment decision authority when determining whether to pursue this service need in competition with all other service needs.

- **Plan for initial investment analysis.** The plan for initial investment analysis: (1) defines scope and assumptions; (2) describes alternatives and their associated rough lifecycle costs and benefits; (3) defines organizational roles and responsibilities; (4) specifies a target schedule; and (5) estimates resources needed for the work. By signing the plan for

investment analysis, the organizations that will conduct the analysis agree to provide the resources necessary to complete the work. This activity includes development of the investment analysis readiness decision package, verification that the key products of concept and requirements definition are complete and high quality, and pre-briefings to decision-makers.

- **Validate ACAT designation.** The service team determines whether the ACAT designation assigned during service analysis part 2 is still valid based on information generated during concept and requirements definition. If not, the service team prepares a final acquisition category determination request, and submits it to the Acquisition Executive Board at least one month before the investment analysis readiness decision.

Red Line Content: Acquisition Management Policy:
Section 2.3.4.1 : What Must Be Done

NOTE: The plan for concept and requirements definition must be approved by the Vice Presidents (ATO) or Directors (non-ATO) of the service organization with the mission need and the operating service organization before the start of any CRD activity (see AMS Section 2.3.2.1). Roadmap planning in the enterprise architecture specifies when concept and requirements definition activity must begin.

- **Quantify shortfall.** The service organization updates and refines the preliminary shortfall identified during service analysis in sufficient detail to serve as the basis for (1) clearly understanding the nature, urgency, and impact of the service need; (2) defining preliminary requirements; (3) determining realistic and economic alternative solutions; and (4) quantifying likely program costs and benefits.
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- *Assess Specialty Engineering. All information that will be collected, transmitted, processed, or stored by this initiative must be assessed according to its impact on confidentially, integrity, and availability. This assessment is the basis for preliminary security requirements. Initiatives that require the use of radio frequencies for data transmission must consult with the NAS spectrum organization to plan for that requirement. Key work products of concept and requirements definition (e.g., solution CONOPS, preliminary requirements document, preliminary alternatives descriptions) are verified and validated before the readiness for investment analysis decision.*
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- ~~Finalize~~*Validate* **ACAT designation.** The service team ~~prepares~~*determines* *whether* the ~~final acquisition~~*ACAT* ~~category determination~~*designation* ~~request~~*assigned during service analysis part 2 is still valid* based on information generated during concept and requirements definition. ~~The~~*If not, the service team prepares a final acquisition category determination* request~~,~~ *and submits* ~~is submitted~~*it* to the Acquisition Executive Board ~~for a designation~~ at least one month before the investment analysis readiness decision.

Section 2.3.4.2 : Outputs and Products

Old Content: <u>Acquisition Management Policy</u>:
Section 2.3.4.2 : Outputs and Products

- Solution concept of operations;
- Preliminary program requirements document;
- Enterprise architecture products and amendments;
- Realistic alternatives with rough cost and benefit estimates;
- Detailed shortfall and functional analyses;
- Safety risk assessment;
- Acquisition category designation request; and
- Initial investment analysis plan.

The key work products of concept and requirements definition are verified and validated before the investment analysis readiness decision.

New Content: <u>Acquisition Management Policy</u>:
Section 2.3.4.2 : Outputs and Products

- Solution concept of operations;
- Detailed shortfall and functional analyses;
- Preliminary program requirements document;
- Enterprise architecture products and amendments;
- Realistic alternatives with rough cost and monetized shortfall estimates;
- Safety assessment;
- Acquisition category designation request (if needed); and
- Initial investment analysis plan.

The key work products of concept and requirements definition are verified and validated before the investment analysis readiness decision.

Red Line Content: Acquisition Management Policy:
Section 2.3.4.2 : Outputs and Products

• Solution concept of operations;
• *Detailed shortfall and functional analyses;*
• Preliminary program requirements document;
• Enterprise architecture products and amendments;
• Realistic alternatives with rough cost and ~~benefit estimates; Detailed~~*monetized* shortfall ~~and~~ ~~functional analyses~~*estimates;*
• ~~;~~ Safety ~~risk~~ assessment; ~~Acquisition category~~
• *Acquisition category* designation request *(if needed)*; and
• Initial investment analysis plan. ~~The~~
The key work products of concept and requirements definition are verified and validated before the investment analysis readiness decision.

Section 2.3.4.3 : Who Does It?

Old Content: Acquisition Management Policy:
Section 2.3.4.3 : Who Does It?

The implementing service organization with the service need leads and is responsible for completion of all activities and outputs and products of concept and requirements definition unless otherwise specified in the concept and requirements definition plan. Specific roles and responsibilities of participating organizations for each activity and output/product are found in the Service Analysis and Concept and Requirements Definition Guidelines.

New Content: Acquisition Management Policy:
Section 2.3.4.3 : Who Does It?

The implementing service organization with the service need leads and is responsible for completion of all activities and outputs and products of concept and requirements definition unless otherwise specified in the concept and requirements definition plan. Specific roles and responsibilities of participating organizations for each activity and output/product are found in the Guidelines for Service Analysis and Concept and Requirements Definition.

Red Line Content: Acquisition Management Policy:
Section 2.3.4.3 : Who Does It?

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responsibilities of participating organizations for each activity and output/product are found in the ***Guidelines for*** Service Analysis and Concept and Requirements Definition ~~Guidelines~~.

Section 2.3.4.4 : Who Approves?

Old Content: Acquisition Management Policy:
Section 2.3.4.4 : Who Approves?

The key work products of concept and requirements definition must be verified and validated according to FAA verification and validation guidance and standards before submission for approval. Approval authorities are found in the Service Analysis and Concept and Requirements Definition Guidelines.

New Content: Acquisition Management Policy:
Section 2.3.4.4 : Who Approves?

The key work products of concept and requirements definition must be verified and validated according to FAA verification and validation guidance and standards before submission for approval. Approval authorities are found in the Guidelines for Service Analysis and Concept and Requirements Definition.

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Section 2.3.2 : Service Analysis
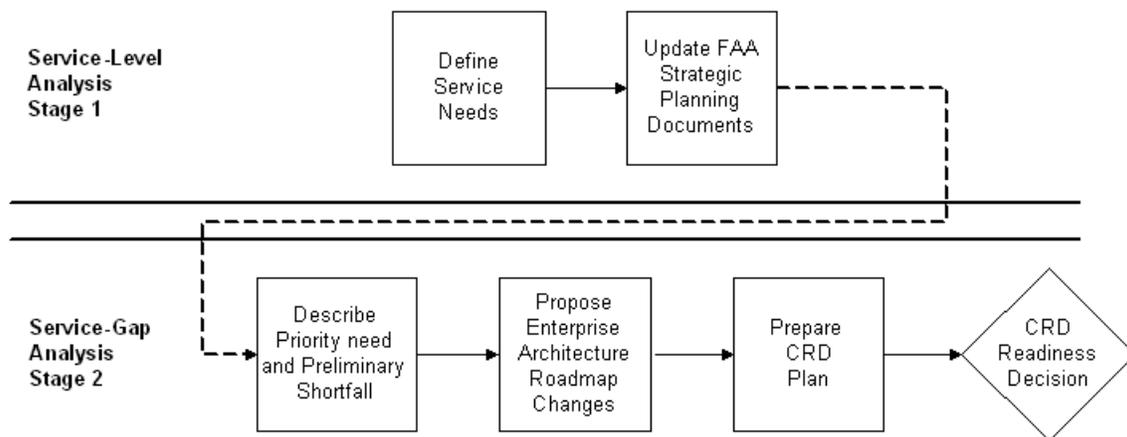
Old Content: Acquisition Management Policy:
Section 2.3.2 : Service Analysis

Service analysis is conducted within the framework of Destination 2025 and the FAA enterprise architecture to determine what capabilities must be in place now and in the future to meet agency goals and the service needs of customers. Results are captured in the "as is" and "to be" states of the FAA enterprise architecture, as well as the roadmaps for moving from the current to the future state. Results are also captured in line-of-business business plans and service organization operating plans, which specify how each will manage its RE&D, F&E, and OPS resources over time. These plans integrate new investment initiatives with the operation and support of fielded assets and other necessary actions to optimize service delivery. Continuing analysis keeps planning current with changes in the mission and operational environment.

Industry best practices (e.g., technology and service demand forecasting, portfolio management, customer surveys) are employed during service analysis to align service outcomes with actions and activities necessary and sufficient to realize benefits for the FAA and its customers. Service analysis may lead to the refocus, reduction, or elimination of ongoing investment programs, and may identify new and more productive ways of doing business. It may also identify alternative paths for achieving service goals in a dynamic environment, and may identify opportunities for improving FAA strategic planning when the mission environment evolves in ways not anticipated. Some investment opportunities may require research and development to demonstrate operational concepts, reduce risk, or define requirements before proceeding further in the lifecycle management process.

As shown in Figure 2.3.2-1, service analysis is a 2-stage process. Stage 1 (service-level analysis) is the recurring analysis from which service organizations determine and prioritize service shortfalls and opportunities over time and propose modifications to agency strategic planning documents. Stage 2 (service-gap analysis) develops the information needed for entry of high-priority service needs from the enterprise architecture roadmaps into concept and requirements definition.

Figure 2.3.2-1 Key Activities of Service Analysis

New Content: Acquisition Management Policy:
Section 2.3.2 : Service Analysis

Service analysis is conducted within the framework of Destination 2025 and the FAA enterprise architecture to determine what capabilities must be in place now and in the future to meet agency goals and the service needs of customers. Results are captured in the "as is" and "to be" states of the FAA enterprise architecture, as well as the roadmaps for moving from the current to the future state. Results are also captured in line-of-business business plans and service organization operating plans, which specify how each will manage its RE&D, F&E, and OPS resources over time. These plans integrate new investment initiatives with the operation and support of fielded assets and other necessary actions to optimize service delivery. Continuing analysis keeps planning current with changes in the mission and operational environment.

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As shown in Figure 2.3.2-1, service analysis is a 2-part process. Part 1 is the recurring analysis from which service organizations determine and prioritize service shortfalls and opportunities over time and propose modifications to agency strategic planning documents. Part 2 develops the information needed for entry of high-priority, time-critical service needs from the enterprise architecture roadmaps into concept and requirements definition.

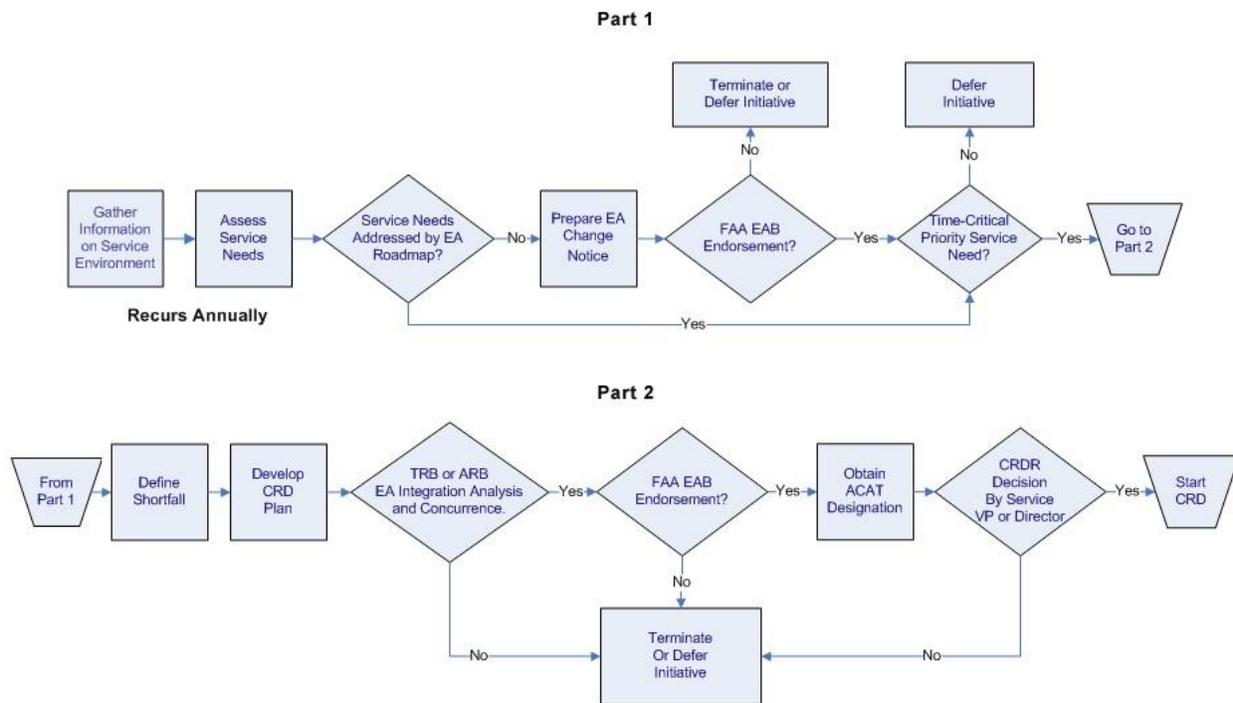**Figure 2.3.2-1 Service Analysis**

Red Line Content: <u>Acquisition Management Policy</u>:
Section 2.3.2 : Service Analysis

Service analysis is conducted within the framework of Destination 2025 and the FAA enterprise architecture to determine what capabilities must be in place now and in the future to meet agency goals and the service needs of customers. Results are captured in the "as is" and "to be" states of the FAA enterprise architecture, as well as the roadmaps for moving from the current to the future state. Results are also captured in line-of-business business plans and service organization operating plans, which specify how each will manage its RE&D, F&E, and OPS resources over time. These plans integrate new investment initiatives with the operation and support of fielded assets and other necessary actions to optimize service delivery. Continuing analysis keeps planning current with changes in the mission and operational environment. ~~Industry~~
Industry best practices (e.g., technology and service demand forecasting, portfolio management, ***and*** customer surveys) are employed during service analysis to align service outcomes with actions and activities necessary and sufficient to realize benefits for the FAA and its customers. Service analysis may lead to the refocus, reduction, or elimination of ongoing investment programs, and may identify new and more productive ways of doing business. It may also identify alternative paths for achieving service goals in a dynamic environment, and may identify opportunities for improving FAA strategic planning when the mission environment evolves in ways not anticipated. Some investment opportunities may require research and development to demonstrate operational concepts, reduce risk, or define requirements before proceeding further in the lifecycle management process. ~~As~~
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Figure 2.3.2-1 Key Activities of Service Analysis

Section 2.3.2.1 : What Must Be Done

Old Content: Acquisition Management Policy:
Section 2.3.2.1 : What Must Be Done

Service-Level Analysis:

- **Define service needs.** Service organizations analyze forecasts for aviation service needs and stay abreast of opportunities for improving service delivery as a basis for determining and prioritizing service needs and shortfalls. A continuing dialog with and feedback from customers (e.g., commercial air carriers, general aviation, air transport industry, state and

local airport authorities) and users (air traffic and technical operations) are crucial, as is the supportability and operational outlook for fielded assets. This activity identifies business, technology, organizational, process, and personnel issues that affect service outcomes, as well as assumptions, risks, and dependencies.

- **Update FAA strategic planning documents.** When service and infrastructure needs within and across lines of business emerge that differ from those in the enterprise architecture roadmaps and FAA strategic planning, the service organization proposes changes, ties them to FAA strategic and performance measures, and indicates when they need to be resolved. These emerging needs are reviewed, vetted, and integrated within agency-level strategic planning documents (e.g., enterprise architecture roadmaps, Destination 2025, and NAS Midterm CONOPS) using appropriate processes.

Service-Gap Analysis:

- **Describe priority need and preliminary shortfall.** When a priority service need within an enterprise architecture roadmap requires action to start now on the search for a best overall solution, the service organization defines the capability that must be put in place to improve service delivery and achieve agency strategic and performance goals. Improvements are stated as performance objectives (e.g., increased capacity, improved safety, more efficient operations, clearer communications, faster surveillance update), which are used later in concept and requirements definition to quantify needed physical and operational improvements. The service organization also defines the service shortfall as a foundation for understanding the problem and its nature, urgency, and impact. The shortfall is the difference between future service need and current capability. Finally, the service organization describes legacy assets that now perform the function or service. Legacy assets include all existing and funded systems, facilities, people, and processes. It does not include any additional investment beyond what is in an investment segment baseline approved by an investment decision authority. The service need, shortfall, and legacy case are recorded in the preliminary shortfall analysis report.
- **Propose enterprise architecture roadmap changes.** Should the preliminary shortfall analysis identify important service needs not in an enterprise architecture roadmap, the service organization prepares change documents for inclusion and submits them to the Enterprise Architecture Board for approval. Approval is required before entry into concept and requirements definition.
- **Prepare concept and requirements definition plan.** NextGen Engineering Services (NAS) or AIO Information Technology Research & Development (non-NAS) works with the implementing and operating service organizations to prepare a plan for concept and requirements definition. This plan (1) specifies how tasks will be accomplished, including any supporting research or analysis; (2) defines the roles and responsibilities of participating organizations; (3) defines outputs and exit criteria; (4) establishes a schedule for completion; and (5) specifies needed resources. By signing the plan for concept and requirements definition, organizations that will do the work agree to provide the necessary resources. The service organization also recommends an ACAT level to NextGen Engineering Services. The recommendation is based on preliminary financial data, as well as subjective assessments of complexity, risk, political sensitivity, safety, and security. NextGen Engineering Services either concurs with the

recommendation or proposes a different level to the Acquisition Executive Board which makes the final determination.

New Content: Acquisition Management Policy:
Section 2.3.2.1 : What Must Be Done

Service Analysis – Part 1:

- **Gather Information on the Service Environment.** Service organizations analyze forecasts for aviation service needs and stay abreast of opportunities for improving service delivery as a basis for determining and prioritizing service needs and shortfalls. A continuing dialog with and feedback from customers (e.g., commercial air carriers, general aviation, air transport industry, state and local airport authorities) and users (air traffic and technical operations) are crucial, as is the supportability and operational outlook for fielded assets. This activity identifies business, technology, organizational, process, and personnel issues that affect service outcomes, as well as assumptions, risks, and dependencies.
- **Assess Service Needs.** Service organizations assess the service environment yearly to identify emerging service and infrastructure needs not reflected in agency planning. This activity describes qualitatively the nature, urgency, and impact of emerging service shortfalls and opportunities. This information is used as a basis for updating agency strategic planning documents.
- **Service Needs Addressed by an Enterprise Architecture Roadmap?** The FAA Enterprise Architecture Board determines whether a service need is addressed by an EA roadmap. If it is not and the Board endorses the service need, and directs preparation of an Enterprise Architecture Change Notice.
- **Prepare Enterprise Architecture Change Notice.** When service and infrastructure needs within and across lines of business emerge that differ from those in the enterprise architecture roadmaps, the service organization prepares an EA change notice and presents it the FAA Enterprise Architecture Board for endorsement. Once approved by the Joint Resources Council (once annually), a priority time-critical service or infrastructure need can prepare for entry into concept and requirements definition by completing part 2 service analysis activities.
- **FAA Enterprise Architecture Board Endorsement?** The FAA Enterprise Architecture Board determines whether a service need should be entered into an EA roadmap based on the information in the EA change notice. If so, they approve the change notice and direct inclusion of the need into the appropriate enterprise architecture roadmap. If not, they terminate or defer the initiative.
- **Time-Critical Priority Service Need?** Service organizations recommend service needs for entry into the AMS lifecycle management process. The FAA Enterprise Architecture Board either endorses the need and authorizes entry into service analysis part 2 or defers action. The decision is based on the relative merit of the service need in competition with all other service needs using such criteria as contribution to agency strategic goals, monetary or performance benefits, compatibility with enterprise architecture, risk, and political sensitivity.

Service Analysis - Part 2:

- **Define Shortfall.** When a priority service need within an enterprise architecture roadmap requires action to start now on the search for a best overall solution, the service organization defines qualitatively the capability that must be put in place to improve service delivery and achieve agency strategic and performance goals. Improvements are stated as performance objectives (e.g., increased capacity, improved safety, more efficient operations, clearer communications, faster surveillance update), which are used later in concept and requirements definition to quantify needed physical and operational improvements. The service organization also defines the service shortfall as a foundation for understanding the problem and its nature, urgency, and impact. The shortfall is the difference between future service need and current capability. Finally, the service organization describes legacy assets that now perform the function or service. Legacy assets include all existing and funded systems, facilities, people, and processes. It does not include any additional investment beyond what is in an investment segment baseline approved by the investment decision authority. The service need, shortfall, and legacy case are recorded in the preliminary shortfall analysis report.
- **Develop concept and requirements definition plan.** After the review board endorses the investment initiative, the service organization works with NAS Lifecycle Integration (NAS) or AIO Information Technology Research & Development (non-NAS) to prepare a plan for concept and requirements definition. This plan (1) specifies how tasks will be accomplished, including any supporting research or analysis; (2) defines the roles and responsibilities of participating organizations; (3) defines outputs and exit criteria; (4) establishes a schedule for completion; and (5) specifies needed resources. By signing the plan for concept and requirements definition, organizations that will do the work agree to provide the necessary resources.
- **TRB or ARB Integration Analysis and Concurrence.** The Technical Review Board (NAS) or Architecture Review Board (non-NAS) evaluates the service shortfall and proposed investment initiative. They focus on cross domain issues and the strategic business case. Based on their findings, these boards either recommend the investment initiative to the Enterprise Architecture Board for consideration or they recommend termination or deferred action.
- **FAA Enterprise Architecture Board Endorsement.** The Enterprise Architecture Board either endorses the investment initiative or terminates or defers action. In making this decision, the Board evaluates the severity and time criticality of the service need, whether the initiative will contribute effectively to FAA strategic goals, and whether it is ready to enter concept and requirements definition.
- **Obtain Acquisition Category Designation.** After obtaining endorsement by the FAA Enterprise Architecture Board, the service organization completes the ACAT designation request and recommends an ACAT level to NAS Lifecycle Integration. The recommendation is based on preliminary financial data, as well as subjective assessments of complexity, risk, political sensitivity, safety, and security. NAS Lifecycle Integration either concurs with the recommendation or proposes a different level to the Acquisition Executive Board which makes the final determination.
- **Make the CRD Readiness Decision.** The Vice President (ATO) or Director (other lines of business) makes the final decision to enter concept and requirements definition. In

making this decision, the Vice President or Directors confirms that this initiative is the highest priority investment opportunity within the service organization at this time.

Red Line Content: Acquisition Management Policy:
Section 2.3.2.1 : What Must Be Done

Service ~~Level~~ Analysis *– Part 1*:

- **~~Define~~*Gather* ~~service~~*Information* ~~needs~~*on the Service Environment*.** Service organizations analyze forecasts for aviation service needs and stay abreast of opportunities for improving service delivery as a basis for determining and prioritizing service needs and shortfalls. A continuing dialog with and feedback from customers (e.g., commercial air carriers, general aviation, air transport industry, state and local airport authorities) and users (air traffic and technical operations) are crucial, as is the supportability and operational outlook for fielded assets. This activity identifies business, technology, organizational, process, and personnel issues that affect service outcomes, as well as assumptions, risks, and dependencies.
- **~~Update~~*Assess* ~~FAA~~*Service Needs. Service organizations assess the service environment yearly to identify emerging service and infrastructure needs not reflected in agency planning. This activity describes qualitatively the nature, urgency, and impact of emerging service shortfalls and opportunities. This information is used as a basis for updating agency* strategic planning documents.**
- ***Service Needs Addressed by an Enterprise Architecture Roadmap? The FAA Enterprise Architecture Board determines whether a service need is addressed by an EA roadmap. If it is not and the Board endorses the service need, and directs preparation of an Enterprise Architecture Change Notice.***
- ***Prepare Enterprise Architecture Change Notice.*** When service and infrastructure needs within and across lines of business emerge that differ from those in the enterprise architecture roadmaps*, the service organization prepares an EA change notice* and *presents it the* FAA ~~strategic~~*Enterprise* ~~planning,~~*Architecture Board for endorsement. Once approved by* the ~~service organization~~*Joint Resources* ~~proposes~~*Council (once* ~~changes~~*annually)*, ~~ties them~~*a priority to~~*time-critical* FAA ~~strategic and performance~~*service or infrastructure need* ~~measures,~~*can prepare for entry into concept* and ~~indicates~~*requirements definition* ~~when~~*by* ~~they~~*completing part 2 service analysis activities.*
- ***FAA Enterprise Architecture Board Endorsement? The FAA Enterprise Architecture Board determines whether a service* need ~~to~~*should* be ~~resolved.~~*entered* ~~These emerging needs are~~*into an EA roadmap* ~~reviewed,~~*based on the* ~~vetted~~*information in the EA change notice. If so, they approve the change notice* and ~~integrated within~~*direct inclusion* ~~agency level~~*of* ~~strategic planning documents~~*the need into* ~~(e.g.,~~*the appropriate* enterprise architecture ~~roadmaps,~~*roadmap.* ~~Destination 2025~~*If not, they terminate or defer the initiative.*
- ***Time-Critical Priority Service Need? Service organizations recommend service needs for entry into the AMS lifecycle management process. The FAA Enterprise Architecture Board either endorses the need* and ~~NAS Midterm~~*authorizes entry* ~~CONOPS)~~*into service analysis part 2 or defers action. The decision is based on the***

relative merit of the service need in competition with all other service needs using ~~appropriate~~*such* ~~processes~~*criteria as contribution to agency strategic goals, monetary or performance benefits, compatibility with enterprise architecture, risk, and political sensitivity*.

Service ~~Gap~~ Analysis *- Part 2*:

- ~~**Describe priority need and preliminary**~~***Define*** ~~**shortfall**~~***Shortfall***. When a priority service need within an enterprise architecture roadmap requires action to start now on the search for a best overall solution, the service organization defines ***qualitatively*** the capability that must be put in place to improve service delivery and achieve agency strategic and performance goals. Improvements are stated as performance objectives (e.g., increased capacity, improved safety, more efficient operations, clearer communications, faster surveillance update), which are used later in concept and requirements definition to quantify needed physical and operational improvements. The service organization also defines the service shortfall as a foundation for understanding the problem and its nature, urgency, and impact. The shortfall is the difference between future service need and current capability. Finally, the service organization describes legacy assets that now perform the function or service. Legacy assets include all existing and funded systems, facilities, people, and processes. It does not include any additional investment beyond what is in an investment segment baseline approved by ~~an~~***the*** investment decision authority. The service need, shortfall, and legacy case are recorded in the preliminary shortfall analysis report.

- ~~**Propose**~~***Develop*** ~~**enterprise architecture roadmap**~~***concept and requirements*** ~~**changes**~~***definition plan***. ~~Should~~***After*** the ~~preliminary shortfall analysis identify important service needs not~~***review*** ~~in an enterprise architecture roadmap~~***board endorses the investment initiative***, the service organization ~~prepares change documents for inclusion and submits them to the Enterprise Architecture Board for approval. Approval is required before entry into concept and requirements definition. Prepare concept~~***works*** ~~and~~***with*** ~~requirements definition~~***NAS*** ~~plan. NextGen~~***Lifecycle*** ~~Engineering Services~~***Integration*** (NAS) or AIO Information Technology Research & Development (non-NAS) ~~works with the implementing and operating service organizations~~ to prepare a plan for concept and requirements definition. This plan (1) specifies how tasks will be accomplished, including any supporting research or analysis; (2) defines the roles and responsibilities of participating organizations; (3) defines outputs and exit criteria; (4) establishes a schedule for completion; and (5) specifies needed resources. By signing the plan for concept and requirements definition, organizations that will do the work agree to provide the necessary resources.~~ ~~

- ***TRB or ARB Integration Analysis and Concurrence. The Technical Review Board (NAS) or Architecture Review Board (non-NAS) evaluates the service shortfall and proposed investment initiative. They focus on cross domain issues and the strategic business case. Based on their findings, these boards either recommend the investment initiative to the Enterprise Architecture Board for consideration or they recommend termination or deferred action.***

- ***FAA Enterprise Architecture Board Endorsement. The Enterprise Architecture Board either endorses the investment initiative or terminates or defers action. In making this decision, the Board evaluates the severity and time criticality of the service need,***

whether the initiative will contribute effectively to FAA strategic goals, and whether it is ready to enter concept and requirements definition.

- *Obtain Acquisition Category Designation. After obtaining endorsement by the FAA Enterprise Architecture Board, the* service organization ~~also~~*completes the ACAT designation request and* recommends an ACAT level to ~~NextGen~~ *NAS* ~~Engineering Services~~*Lifecycle Integration*. The recommendation is based on preliminary financial data, as well as subjective assessments of complexity, risk, political sensitivity, safety, and security. ~~NextGen Engineering Services~~*NAS Lifecycle Integration* either concurs with the recommendation or proposes a different level to the Acquisition Executive Board which makes the final determination.
- *Make the CRD Readiness Decision. The Vice President (ATO) or Director (other lines of business) makes the final decision to enter concept and requirements definition. In making this decision, the Vice President or Directors confirms that this initiative is the highest priority investment opportunity within the service organization at this time.*

Section 2.3.2.2 : Outputs and Products

Old Content: Acquisition Management Policy:
Section 2.3.2.2 : Outputs and Products

- Preliminary shortfall analysis report that describes qualitatively the service need, shortfall, and legacy assets;
- Recommended changes to an enterprise architecture roadmap; and
- Concept and requirements definition plan, including the ACAT determination.

The key work products of service analysis are verified and validated according to the verification and validation guidelines before the CRD readiness decision.

New Content: Acquisition Management Policy:
Section 2.3.2.2 : Outputs and Products

- Enterprise architecture change notices;
- Preliminary shortfall analysis report that describes qualitatively the service need, shortfall, and legacy assets; and
- Concept and requirements definition plan, including the preliminary ACAT determination request as an attachment.

The key work products of service analysis are verified and validated before the CRD readiness decision according to the verification and validation guidelines.

Red Line Content: Acquisition Management Policy:
Section 2.3.2.2 : Outputs and Products

- *Enterprise architecture change notices;*
- Preliminary shortfall analysis report that describes qualitatively the service need, shortfall, and

legacy assets; ~~Recommended changes to an enterprise architecture roadmap;~~ and
 • Concept and requirements definition plan, including the ***preliminary*** ACAT determination ***request as an attachment***. ~~The~~
The key work products of service analysis are verified and validated ***before the CRD readiness decision*** according to the‑ verification and validation‑ ~~guidelines~~ ~~before the CRD readiness decision~~***guidelines***.

<div align="center">

Section 2.3.2.3 : Who Does It?

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Old Content: <u>Acquisition Management Policy</u>:
Section 2.3.2.3 : Who Does It?

Service directorates (non-ATO) and service units (ATO) conduct service analysis and prepare outputs and products in conjunction with Nextgen Engineering Services (NAS) or
AIO Information Technology Research and Development (non-NAS), as appropriate. This includes the preliminary need analysis, enterprise architecture products and amendments, and plan for concept and requirements definition. The Enterprise Architecture Board manages the FAA enterprise architecture.

New Content: <u>Acquisition Management Policy</u>:
Section 2.3.2.3 : Who Does It?

Service directorates (non-ATO) and service units (ATO) conduct service analysis and prepare outputs and products in conjunction with NAS Lifecycle Integration (NAS) or AIO Information Technology Research and Development (non-NAS), as appropriate. This includes the preliminary need analysis, enterprise architecture products and amendments, and plan for concept and requirements definition. The Technical Review Board (NAS) and Architecture Review Board (non-NAS) evaluate enterprise architecture change notices in conjunction with the initial shortfall analysis and recommend endorsement or rejection. The Enterprise Architecture Board manages the FAA enterprise architecture.

Red Line Content: <u>Acquisition Management Policy</u>:
Section 2.3.2.3 : Who Does It?

Service directorates (non-ATO) and service units (ATO) conduct service analysis and prepare outputs and products in conjunction with ~~Nextgen Engineering~~***NAS Lifecycle*** ~~Services~~***Integration*** (NAS) or AIO‑ Information Technology‑ Research and Development (non-NAS), as appropriate. This includes the preliminary need analysis, enterprise architecture products and amendments, and plan for concept and requirements definition. The ***Technical Review Board (NAS) and Architecture Review Board (non-NAS) evaluate enterprise architecture change notices in conjunction with the initial shortfall analysis and recommend endorsement or rejection. The*** Enterprise Architecture Board manages the FAA enterprise architecture.

<div align="center">**Section 2.3.2.4 : Who Approves?**</div>

Old Content: <u>Acquisition Management Policy</u>:
Section 2.3.2.4 : Who Approves?

The Enterprise Architecture Board reviews the plan for CRD and recommends approval. The Vice President (ATO) or Director (non-ATO) of the service organization with the service need approves the plan. The Enterprise Architecture Board approves amendments and updates to the enterprise architecture, as appropriate. The Director, Nextgen Engineering Services and the Director of the service organization with the need approve the preliminary shortfall analysis report.

New Content: <u>Acquisition Management Policy</u>:
Section 2.3.2.4 : Who Approves?

The Enterprise Architecture Board reviews the plan for CRD and recommends approval. The Vice President (ATO) or Director (non-ATO) of the service organization with the service need approves the plan. The Enterprise Architecture Board approves amendments and updates to the enterprise architecture, as appropriate. The Director, NAS Lifecycle Integration and the Director of the service organization with the need approve the preliminary shortfall analysis report.

Red Line Content: <u>Acquisition Management Policy</u>:
Section 2.3.2.4 : Who Approves?

The Enterprise Architecture Board reviews the plan for CRD and recommends approval. The Vice President (ATO) or Director (non-ATO) of the service organization with the service need approves the plan. The Enterprise Architecture Board approves amendments and updates to the enterprise architecture, as appropriate. The Director, ~~Nextgen Engineering Services~~ *NAS Lifecycle Integration* and the Director of the service organization with the need approve the preliminary shortfall analysis report.