FAA Enterprise Architecture

NAS EA Conference

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Contents

- EA Overview
- Why Do Enterprise Architecture?
- EA Operational Model (How we implement EA)
- EA Benefits
- EA Usage
- EA Toolset
- Summary
Enterprise Architecture is the bridge between Business Strategy and IT Strategy. EA enables the effective utilization of IT assets for increasing ROI and meeting business needs on an ongoing basis.
Why Do EA? – The Winchester Mystery House - California

- 160 room Victorian mansion
- Built over 38 years, starting in 1884 without concern for what was already built

- Started with no blueprint in place
- Maze of individual rooms
- Includes stairs that lead nowhere, half built fireplaces, and other unexplained oddities

Evolved in an additive fashion from independent sources over time
Why Do Enterprise Architecture

- **Makes Good Business Sense**
  - Provides the information base to optimize IT investment decisions
  - Reduces cost and complexity
  - Enables faster organizational response
  - Improves system security
  - Avoids misaligned disparate systems that do not trace to mission goals

- **Compliance with FAA Policy, Federal Law, and other Mandates**
  - AMS - Changes made to AMS in 2006 require EA
  - Clinger Cohen Act - All Federal Departments must have an Architecture
  - OMB Circular A–130 - A framework must be used to describe Agency’s architecture
  - OMB Circular A–11 - Agency investments must be related to the architecture
  - GAO
    - GAO audit reports impact Congressional decisions
    - EA Improvements contributed to getting off the High Risk List
EA Operational Model (How we implement EA)

Provides a tactical, or operational level view of the EA Strategy Model, depicting dependencies and interactions across its component parts and processes.
Federal Aviation Administration

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EA Benefits

**EA Artifacts**

- **Business Arch.**
- **Technology Arch.**
- **Roadmaps**
- **Governance**
- **Segment Arch.**
- **Line of Sight**

**EA Benefits**

- **Increased reuse and process standardization** by identifying duplicate business processes
- **Reduced cost and time-to-market** by eliminating redundant systems
- **Optimized utilization of IT resources** by using an enterprise view and through process and technology standardization
- **Better Portfolio Management** with visibility into future initiatives and dependencies between them
- **Improved IT Governance** by ensuring alignment with FAA IT policies, standards, and Federal requirements
- **Clearly defined boundary for EA**, usually for a specific service area in an agency with a Business Stakeholder.
- **Ability to do “What-If” analysis** to evaluate impact of cut in Investments, changes in Goals, and Technology Upgrades
Architecture Review Process

- Architecture reviews are conducted throughout the program lifecycle.
- The level of detail in the review process is based on the Acquisition Category (ACAT)

**Category One**
- Program F&E Cost > $800m
- One year F&E > $200m
- O&M tail cost > $500m
- Critical to Mission Support for RS&A
- High rating for Political Sensitivity, Risk, & Complexity

**Category Two**
- Program F&E Cost > $300m & < $800m
- One year F&E > $100m & < $200m
- O&M tail cost > $250m & < $500m
- Critical to Mission Support for RS&A
- Medium to High rating for Political Sensitivity, Risk, & Complexity

**Category Three**
- Program F&E Cost > $100m & < $300m
- One year F&E > $50m & < $100m
- O&M tail cost > $100m & < $250m
- Significant Impact to Mission Support for RS&A
- Medium to High rating for Political Sensitivity, Risk, & Complexity

**Category Four**
- Program F&E Cost > $20m & < $100m
- One year F&E > $20m & < $50m
- O&M tail cost > $20m & < $100m
- Medium to Low rating for Political Sensitivity, Risk, & Complexity

**Category Five**
- Program F&E Cost < $20m
- One year F&E < $20m
- O&M tail cost < $20m
- Low rating for Political Sensitivity, Risk, & Complexity
Greater EA Emphasis on Security

- Continue to Use the FEA Security and Privacy Profile (SPP)
  

- Support Security through Ensuring that EA Knowledge Base Includes Information such as
  - Categorization of Information
  - Categorization of Information Systems
  - Categorization of Shared Services
  - Information System Boundaries
  - Segment and Solution Architectures Should Address Security Control Inheritance
EA Usage

EA artifacts like Roadmaps and Segment Architectures provide useful information to the Capital Planning process. This enables the cyclical evaluation, selection, and management of IT initiatives in the portfolio.

What is my business today and how is it supported by IT?

EA Baseline Architecture

EA Transformation Strategies/Roadmaps, Transition Plans, and Segment Architectures

EA Target Architecture

What will my future business be and how should it be supported by IT?

Capital Planning and Portfolio Mgmt.
Integration of EA and Portfolio Management.

**Performance Management**
- Monitor investments to ensure portfolio performance is on track
- Set goals, priorities, and performance measures for the portfolio
- Prioritize investments according to standard criteria
- Approve the investments that provide the best mix for the portfolio
- Gather consistent data on all investments
- Monitor investments to ensure portfolio performance is on track

**Strategic Planning**
- Goals
- Priorities
- Vision
- Transition Plan

**Enterprise Architecture**
- PRM Line of Sight
- Application Inventory
- Business and IT Architectural Analytics

**Program Management**
- Progress Reports

**System Engineering**
- Progress Reports
- Funded Programs

**Business Case Analysis**
- Costs, Benefits and Risks
- Capital Asset Planning Data

**Capital Planning**
- Transition Plan
- Segment Solutions
- TRM Standards
- SRM Services

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Plan to Further Integrate EA into Portfolio Management

1) Strategic Planning - establishes vision, mission, goals, objectives, & enterprise performance measures

2) Enterprise Architecture – Develops modernization blueprints to meet strategic goals

3) Business Case Development – Creates the OMB 300s from selected blueprint initiatives

4) Capital Planning – Selects which initiative business cases will be funded

5) Investment/Portfolio Management – Compares investment options and guides decision making

6) Program Management – Implements the funding decisions to change the operational environment according to the modernization blueprint

7) Performance Measurement – Measure execution performance against targets for continuous improvement
EA Roadmap Example

Calendar Year 2009
- Replace current EA Repository with System Architect COTS EA Tool, Provide SA Training
- Develop Roadmaps and Segment Architectures
- Integrate with Capital Planning (WorkLenz)
- Identify Standards
- Continue developing Ref Models
- Continue EA Process framework development
- Review EA IM, Recommend ANS Changes
- Develop PRM, EA Metrics
- Develop EA Document Repository
- LOB Uses and provides EA data

Calendar Year 2010
- Develop Roadmaps and Segment Architectures
- Maintain Integration with Capital Planning
- Develop and Publish IT Standards
- Automated Support for Assessing Compliance with IT Standards
- Maintain FEA Reference Model for FAA (TRM, BRM, SRM, DRM)
- TCB and ARB Meetings
- Maintain Performance Reference Model (PRM), Measure Performance against Metrics

Calendar Year 2011
- ...

Key Milestones/Decision Points
- Development of Business/Infrastructure Systems
- Unfunded Systems
- Proposed LOB Activities
- Maintenance Systems
- Dependency

Business Case Exhibit 53/300

LOBs assist in migrating applications to enterprise Data Centers

PMO
- Planning for Optimizing Data Centers
- Optimizing Data Centers
- PMO & Planning

LOBs (ATO, AVS, ARC) support DCost PMO & Planning

Setting up the PMO for Data Center Optimization

1. Setup PMO
2. PMO
3. Planning for Optimizing Data Centers
4. Optimizing Data Centers
5. PMO & Planning
FAA Current State Financial Systems Segment Architecture

Financial Management/Mixed Fin System Complex...
New System Architect (SA) Toolset

- Flexible full-featured tool enabling effective Federated architecture
- Initial reports to answer business questions identified by FAA EA Counterparts group
- Models and many mappings (e.g. applications x technology)
- Request access by email to: 9-awa-ard-001-EA-Request @faa.gov
- Free training available

FAA Non-NAS Implementation Viewable at SA Booth Wednesday, 6/24
Summary

- Enterprise Architecture is a growing discipline within the FAA
- Significant benefits have already been realized
- We will continue to incorporate EA into our IT review, approval and acceptance processes
- Continue to Use the FEA Security and Privacy Profile (SPP)
- Enterprise Architecture is a discipline adopted by most mature IT organizations as a way to better manage their IT resources

Why do Enterprise Architecture?

You can’t afford not to!