



Federal Aviation
Administration

Acquisition Executive Board V&V Working Group Status

2009 V&V Summit

Presented by: John Frederick
AJP-7C2

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Background

- **Acquisition Executive Board (AEB) directed the V&V Working Group to:**
 - Establish a common V&V philosophy across the product lifecycle
 - Develop V&V policy changes and improvements for AMS
- **V&V Working Group is a crosscutting team from FAA service units and organizations**



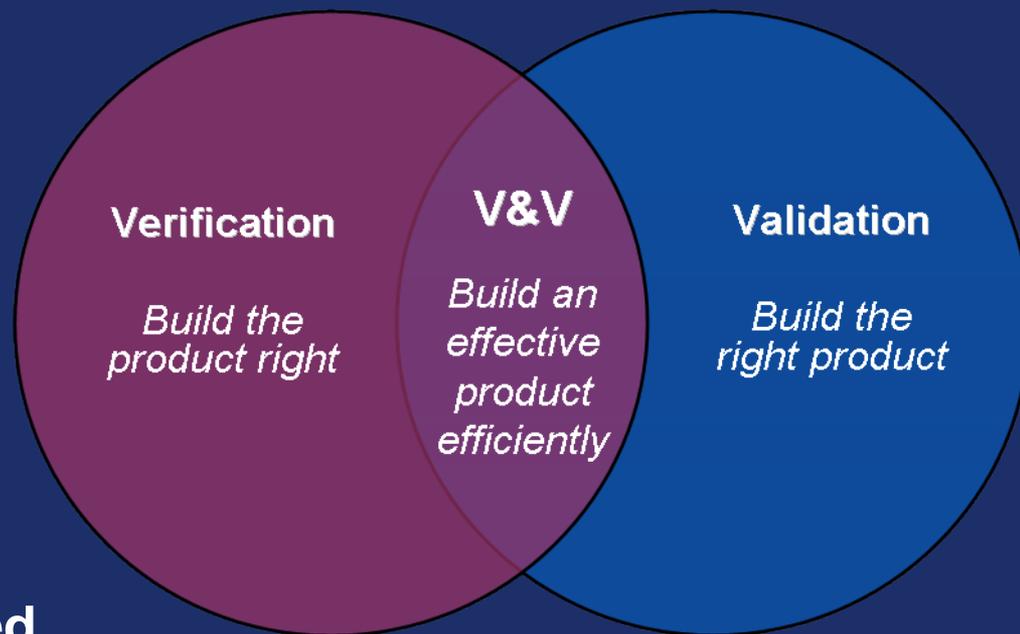
Current Status

- **Lifecycle V&V Philosophy Whitepaper (delivered 4/3/09)**
 - Defines philosophy aspects, elements, and terms
 - Describes the V&V approach for each lifecycle phase
 - Defines work products to be verified and validated and associated decision points
- **Completed V&V gap analysis**
 - (V&V Philosophy Whitepaper vs Acquisition Practices)
- **Developed AMS policy changes**
- **Conducted V&V Stakeholders meeting to establish V&V acquisition practices**
- **Developing V&V guidance for the FAA Acquisition System Toolset**

What do we mean by “V&V”?

Verification- Ensures that selected work products meet their specified requirements (includes intermediate work products)

Validation- Demonstrates whether a product or product component will fulfill its specified purpose when placed in its intended environment



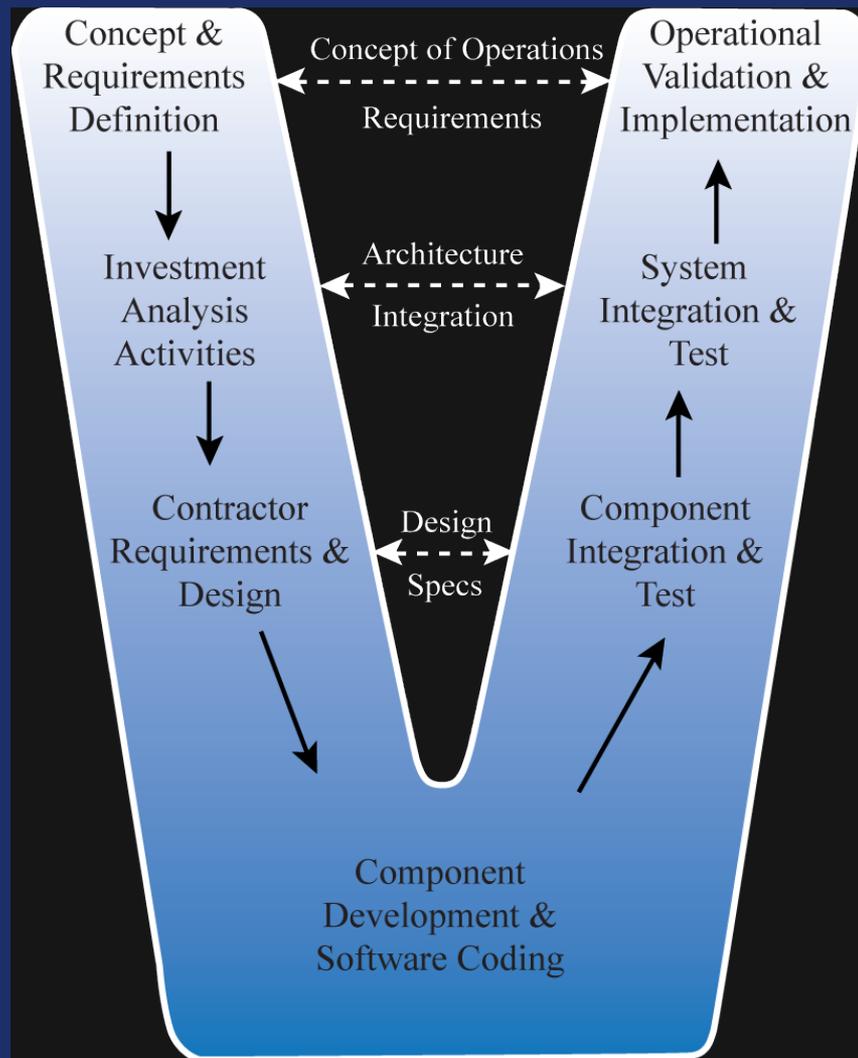
Note: V&V is broader than T&E. The performance of T&E supports the goals and objectives of V&V.

Perform V&V Early and Incrementally

- Focused on key work products/products
- V&V results are collected to support key decision points
- V&V is performed on government and contractor work products
- V&V may occur more than once on a product
 - If there are modifications
 - Additional levels of V&V are required



V&V and the Lifecycle V-Model



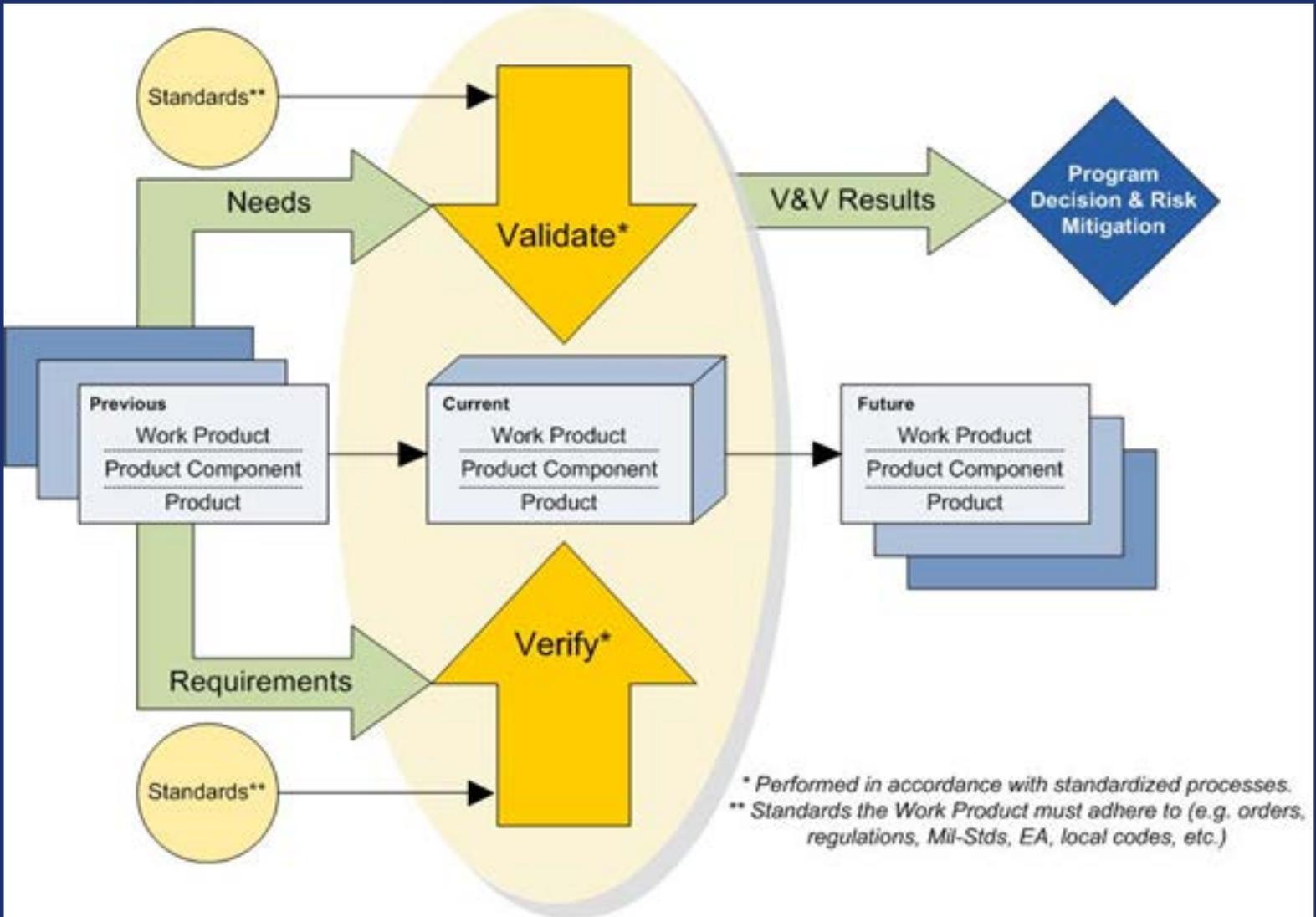
Why do we need this V&V approach?

- **FAA needs**
 - Common V&V philosophy for all lifecycle phases
 - Optimized product acquisitions
 - Better data to support key decisions
- **NextGen will necessitate systematic V&V**
 - Big changes in Concept of Operations
 - System of systems with avionics part of the NAS
- **Problems to be addressed**
 - No common overarching V&V focus that ensures the progression of product maturity
 - Lack of consistent data for decision makers

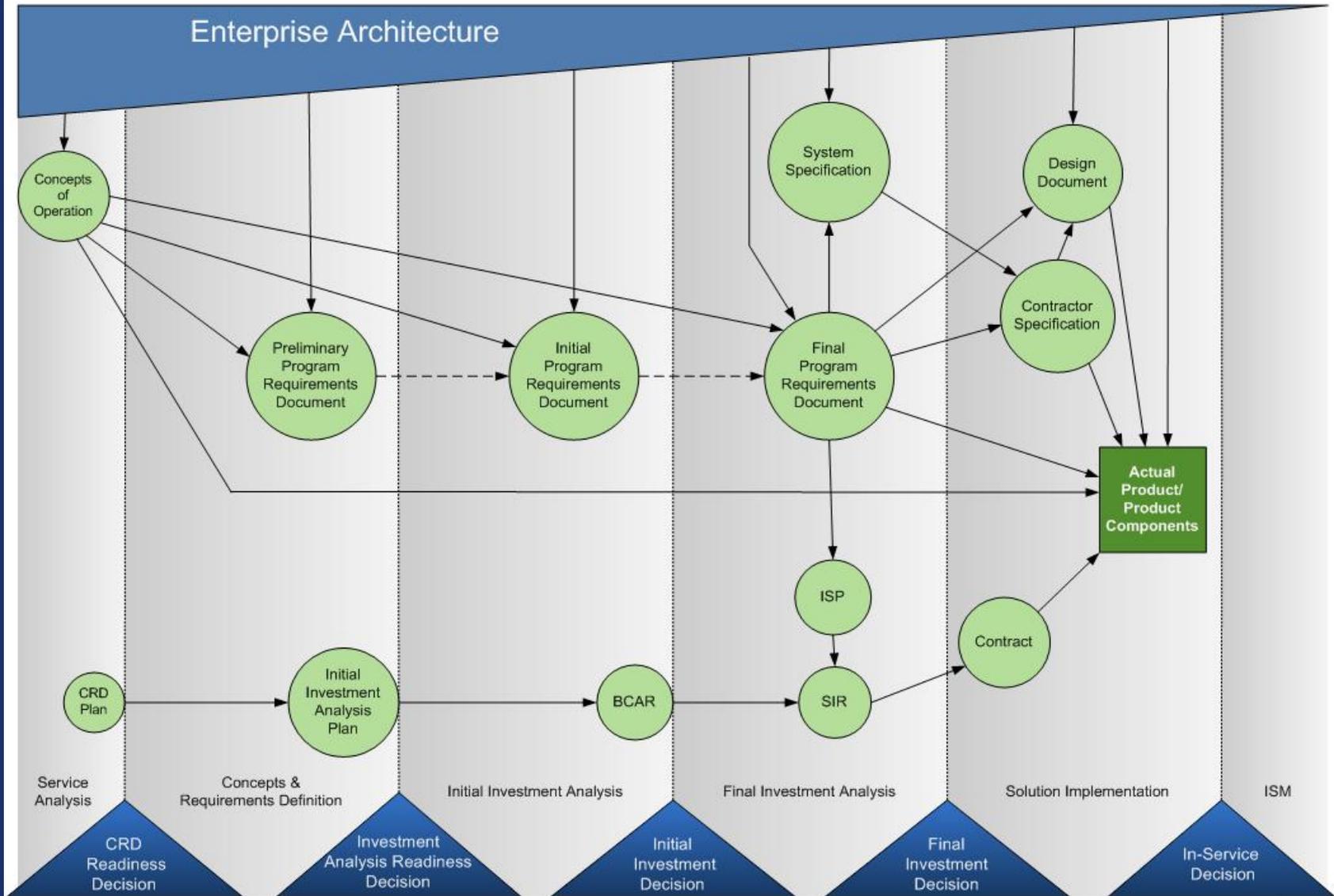
V&V Philosophy Elements

1. **Comprehensive V&V approach is needed for each lifecycle phase**
2. **Systematic V&V should be performed on selected work products that are “best predictors”**
3. **Appropriate levels of independence from developer must be maintained**
4. **Plan for V&V (scope it and baseline the approach)**
5. **Ensure completeness/quality**
6. **Measure performance and assess capabilities**
7. **Decision support for major decisions**
8. **Determine acceptability of product/or work products**
9. **Refine/improve work products/products**
10. **Support development of subsequent work products/products**
11. **V&V must use standardized procedures**

Basic Application of V&V

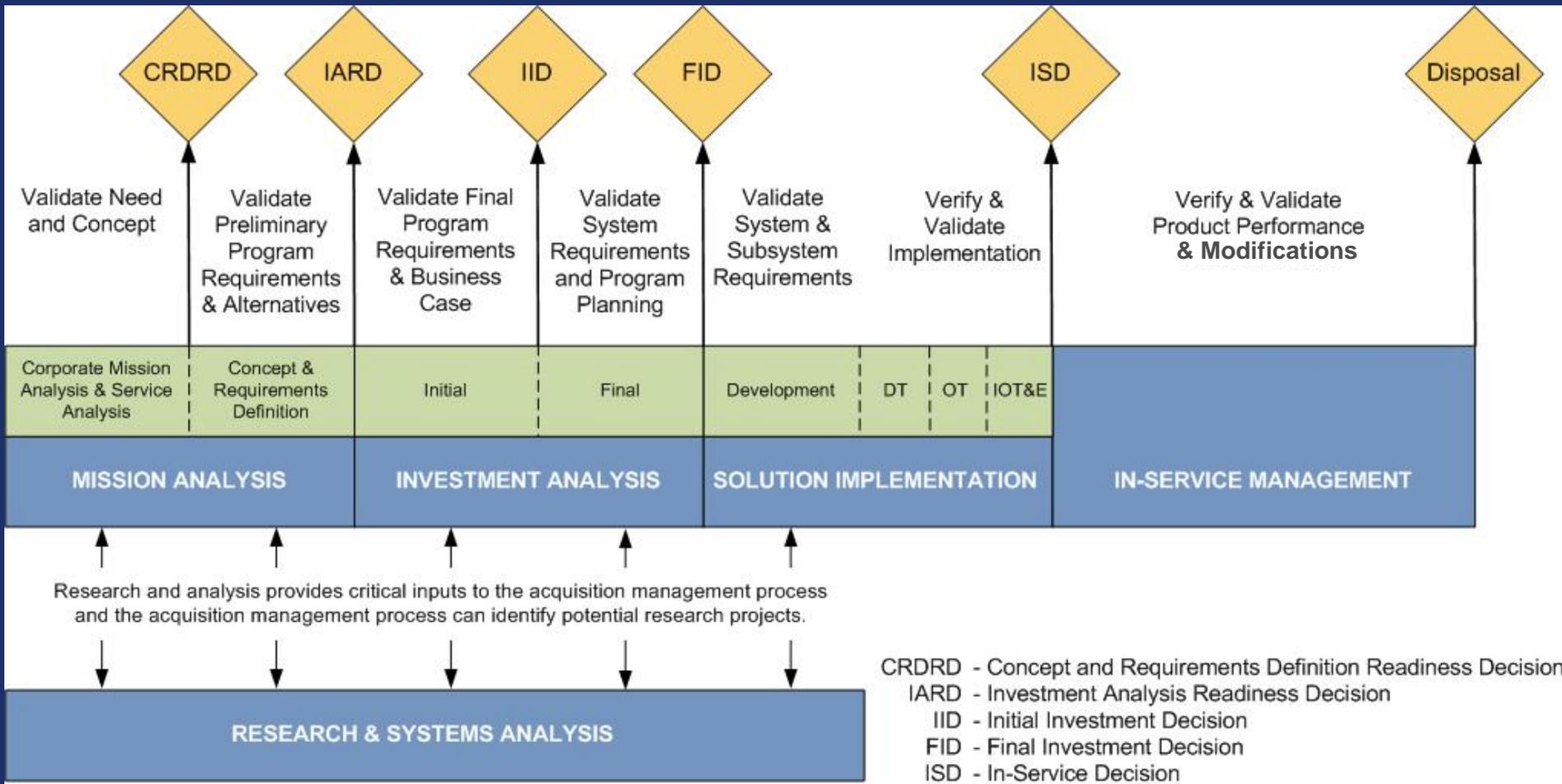


Conceptual V&V Work Product Pathway



This conceptual diagram represents the typical path of work products and decisions for V&V of new acquisitions (ISM work products/decisions are not represented). Programs may tailor work products and decisions for a different pathway.

Corporate Lifecycle V&V View



Implementation Considerations

- Enhance and streamline current policies, acquisition practices, and guidance tools
- Coordinate and communicate changes
- Programs factor V&V into:
 - Planning
 - Research
 - Engineering/Design
 - Development
 - Testing
 - Reporting and Decision Making
- Track and support program conformance to policies/guidance
- Continuous improvement



AMS V&V CR

- **Add V&V bullets to “What Must Be Done” sections of:**
 - CRD
 - IIA
 - FIA
 - SI
 - ISM
- **Bullets identify critical work products and products from that phase that need to be V&V’ed**
- **Also identifies any major decision points that require V&V**

Next Steps for V&V Working Group

- **Incorporate as part of acquisition practice in FAST**
- **V&V guidance planned to be ready by January 2010 along with V&V related AMS Policy changes**
- **Continue to improve and evolve V&V guidance and practices**
 - Involve stakeholders
 - Prepare for NextGen challenges

Questions?

