

Technology Maturation Planning for the Autonomous Approach and Landing Capability (AALC) Program

AFRL 2008 Technology Maturity Conference
Multi-Dimensional Assessment of Technology Maturity
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Outline

- **AALC Demonstration Overview**
- Technology Maturation Plan
 - Framework
 - Aspects/Dimensions
 - Way Ahead
- Lessons Learned
 - AALC Demonstration
 - Technology Maturation Plan

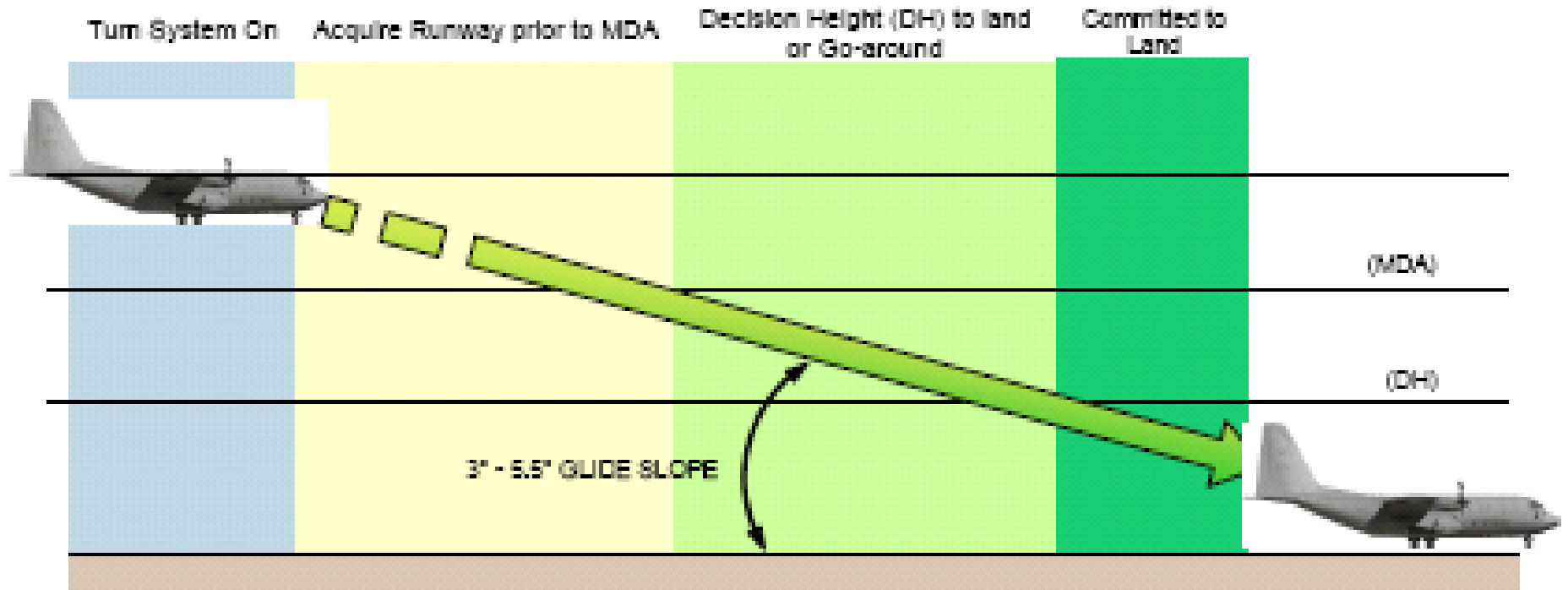
AALC Demonstration Overview

- **Technology Demo for Manned Aircraft AALC**
 - Multi-Directorate AFRL & HQ AMC Team
- **Paved the Way for AMC Capability to Land Aircraft**
 - In Visibility-Reducing Conditions
 - Without Ground-Based Navigation Support
 - To Enhance Rapid Deployment, Base Opening Operations, and Effective Sustainment
- **Developed Requirements for AMC Capability**
- **Used to Shape the AALC TMP**
 - Multi-Phase Approach

AALC Test Aircraft Prep for First Flight



AALC Approach and Landing Profile



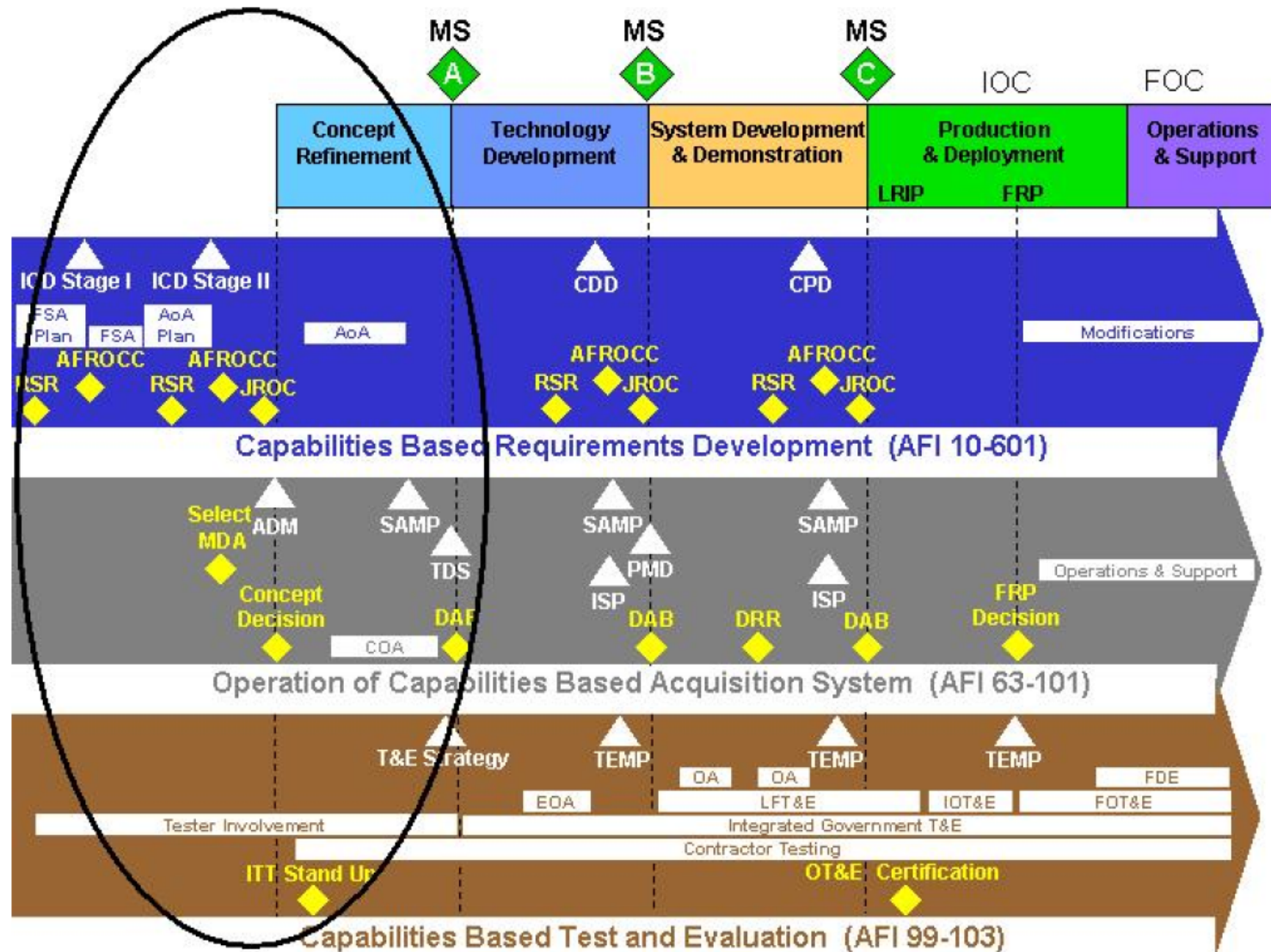
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Technology Maturation Plan

- **Address Deficiencies Uncovered by Demo**
- **Guide Technology Development Required**
 - **Acquisition Milestone B Decision**
 - **For System Development and Demonstration**
 - **Leading to Initial Operational Capability (IOC)**
 - **During Production and Deployment**
 - **After Milestone C Decision**

Activities to Support Milestone A Acquisition Decision



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Technology Maturation Plan Framework

- **Structured to Address Three Key Aspects**
 - S&T Teaming with Acquisition and Sustainment
 - Acquisition Planning for Technology Integration
 - Bridging S&T Development with Acquisition Strategy



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Technology Maturation Plan

Aspects/Dimensions

- Form IPT with All Key Stakeholders in Outcome
- Document Requirements/Exit Criteria
- Use Value Analysis to Select Best Options
- Engage Target Acquisition Programs
- Identify Programs that can Enable AALC Success
- Establish Major Technology Maturation Milestones
- Build Strategy for Risk Analysis/Management

Technology Maturation Plan Aspects/Dimensions (Continued)

- **Develop Key Functional Strategies**
 - **Technical**
 - **Business**
 - **Financial**
 - **Logistics**
 - **Manufacturing**
 - **Test**

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Way Ahead for AALC Capability

Phased Approach

1. Update Customer Requirements & Technology Analysis

- For Sensors, Sensor Fusion & Displays
- Use Systems Engineering Tailored for S&T (SETFST) Process

2. Contract for Technology Maturation Required

- Meet Requirements Vetted in Phase 1

3. Use Mature Technologies for Flight Demonstration

4. Transition Demo Results to Systems Groups

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Lessons Learned

AALC Demonstration

- **Employ SETFST Prior to Contract Proposal**
 - **Fully Define Requirements before Award**
- **Also Employ SETFST after Contract Award**
 - **Contractor Stake in Refinement of Requirements**
- **Fully Test System Before Flight Test**
 - **Plans for Tower Testing Were Dropped**

Lessons Learned

Technology Maturation Plan

- Continuously Vet Requirements/Exit Criteria
- Employ SETFST Process to Build Robust TMP
- Engage Acquisition Community with S&T Team
- Engage All Program Stakeholders on the IPT

Questions?
Comments?
Insights?