AF Modification Process

Rod Thornton
Air Mobility Command HSI Representative
711<sup>th</sup> Human Performance Wing
Human Performance Integration Division

PA Approval: 88ABW-2012-5207
Agenda

- AF Modification Process Overview
- Human System Integration Overview
- Integration of HSI with AF Modification
- Questions
AF Modification Process - Overview

- Controlling Documents
  - AFPD 63-1, Acquisition and Sustainment Life Cycle Management
  - AFI 63-131, Modification Program Management
    Purpose: “Modifications shall be managed as efforts using acquisition and sustainment processes, techniques, and governance“

- Modifications Include Changes to Form, Fit, Function or Interface
AF Modification Process - How

- Methods of Introducing Modifications
  - Urgent Operational Need (UNO)
  - AF Form 1067, *Modification Proposal*
  - Joint Capabilities Integration and Development System (JCIDS) Documents
    - Initial Capabilities Document (ICD), Capability Development Document (CDD), Capability Production Document (CPD), DOTMLPF Change Request (DCR)
AF Modification Process - Why

- Reasons for Modifications
  - Correct Original System Design
  - Sustainability/Maintainability
  - New Capabilities
  - New Restrictions
Human System Integration - Overview

- Not Just Human Factors Engineering (HFE)
- Nine Total Domains
  - Manpower, Personnel, and Training
  - Safety, Occupational Health, and Environmental
  - Habitability, HFE, and Survivability
- Not Subject Matter Expert – Broker of Trade Space Between Domain Owners
- Represent the Human Throughout the System’s Life Cycle
Integrating HSI into the Modification Process - 1

› HSI as Part of Initial System Design
  – JCIDS Documents – Reviews and Working Groups
    ✓ Program Participation
    ✓ High Performance Teams
  – Cockpit Working Groups (CWG)
    ✓ Trade Space
    ✓ Verification/Validation

› Example: KC-135 Block 45
  – Why: Sustainability – Electrical Engine Instrument Display (EEID)
  – CWG – Trade Space: Improved User Interface for Pilot Feedback
  – Verification – Included HSI in Maintenance-Demo
Integrating HSI into the Modification Process - 2

- Prevent Breaking Fielded Systems
  - AF-1067 Review of Submitted Forms
  - Checklist Provided – Improving Quality of Submitted AF-1067s

- Example: AMC 11-029, DOOR OPEN Master Light (NVIS)
  - Why: Correct Original System Design
  - Light Yellow with Black Letters – User Correctly Suggest Black Lens with Illuminated Letters (per MIL-STD-1472)
  - HOWEVER: Wrongly Suggested Switching to Red
Integrating HSI into the Modification Process - 3

- Finding Avenues for Identifying Issues to Correct
  - ASAP (Aviation Safety Action Program) – Direct Inputs from Aircrews
  - Workload Studies

- Example: C-17 Radar (ASAP 240 & 261)
  - Why: Correct Original System Design
  - ASAPs Highlight Issues with Radar – Investigation Found Correction Already In Works - Identified via Earlier Safety Review
Questions?
Backup Slides
AMC HSI Cell Resources


- HSI Guidance Documents
  - HSI in Acquisition
  - AF HSI Handbook
  - HSI Pocket Requirements Guide
  - HSI for Contracts

- AFHSIO, 711 HPW/HPO, and domain SME reachback

- Mr. Rod Thornton (roderick.thornton@scott.af.mil); 618.229.4099
System Engineering V-Diagram
HSI – Goals

- Implement HSI as Part of the Complete System Life Cycle
- Yield Quantifiable and Measurable Impacts on System Design
- Support Three Overarching “ilities” though domain integration
  - Usability
  - Operational Suitability
  - Sustainability
AF HSI Organizations

- AFHSIO – (SAF/AQ) Develops Policy and Provides Oversight
- 711th HPW/HP – (AFRL) Provides Execution and Application of HSI in Systems Acquisition Process
- AMC Representation with reachback to AFHSIO and 711 HPW/HP
  - Pilot Physician
  - Human System Analyst