Enterprise Human Factors
Overview

What are the benefits to the FAA

- Enterprise human factors research investigates areas that have effects across NAS domains, systems, and programs. The program provides integrated guidance on human performance considerations to concept development teams, validation teams, and/or implementation teams. A primary focus is research that furthers successful integration of systems developed and deployed to enable NextGen concepts.

What determines program success

- Early identification of potential human performance issues and mitigation strategies that can support the usability, acceptability, and safety of NextGen concepts and systems.

- Results provided that can be used to improve individual programs' development, validation, and implementation activities, though there are no formal dependencies to specific programs.

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Enterprise Human Factors Program Support

People:

- Program Manager: Karl Kaufmann

- Project Manager: Sabreena Azam

- Subject Matter Experts: Bill Kaliardos

- Program Support: LaTesha Holloman, Lauris Williams

Laboratories:

- ANG-E25 Human Factors Branch, Aviation Research Division Research and Development Human Factors Laboratory

- MITRE Center for Advance Aviation System Development

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Current FY23 Accomplishments

- TBO Impact on TMU Cognitive Model Method Final Report
- TBO Impact on TMU Lab Method Interim Report
- Regional TMU Coordination Practices Phase II – Industry Best Practices Report
- Tailored Human Readiness Levels Guidelines Report
- TBO Training Methods Assessment HITL

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Anticipated Research in FY24

Planned Research Activities

- TBO Human Factors Effects on TMU – Laboratory Method

- Regional TMU Decision-Making and Coordination – Phase 3

- Traffic Manager/Operator NAS Mental Model Analysis

- Human Readiness Levels – Phase 2

Anticipated Research in FY24

Expected Research Products

- TBO HF Effects on TMU – Laboratory Method
  - Report on effect of Trajectory Option Sets use in TMUs
  - Report on semi-interactive prototype simulation study with design concept recommendations
- Regional TMU Decision-Making and Coordination
  - Recommendations to FAA on adoption of industry collaboration practices
  - Expanded traffic management decision-making model
- Traffic Manager/Operator NAS Mental Model Analysis
  - Comparison and gap analysis of differences in operator and traffic manager mental models
- Human Readiness Levels – Phase 2
  - Specific HRL evaluation activities and criteria suitable for FAA AMS
  - Recommendations for adopting HRL scale using lessons learned from application of similar scales

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Emerging FY25 Focal Areas

- Collaborative TFM decision-making
  - New actors
  - More data available to all actors
  - New traffic management entities
  - Interrelationship and coordination between existing and new players

- Air Traffic Control – Info-Centric NAS
  - Two-way shared information
    - How to prevent information overload?
    - Intelligent systems-driven decision support tools
    - How will controller tasks change?
    - Trust in automation, complacency, skill degradation and monitoring.

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Enterprise Human Factors

Research Requirements

Provide integrated enterprise HF guidance to:
- Increase the utilization rate of concepts and systems among controllers
- Ensure controller acceptance of concepts and systems
- Increase safety through the mitigation of known human factors risk
- Decrease controller workload through improved tools and techniques

Outputs/Outcomes

- HF Assessments, such as to determine operational context, NAS interactions, human actors, human factors risks and opportunities
- Enterprise level HF guidance, such as design/procedure/training recommendations for programs to consider

FY 2025 Planned Research

- Continued traffic management collaboration
  - Shared mental models
  - Distributed decision-making
- Analysis of Info-Centric NAS changes
  - Information needs of controllers
  - Automation expansion effects

Out Year Funding Requirements

	FY23	FY24	FY25	FY26	FY27
F&E	$1.5 M	$1.5 M	$2.0 M	$2.0 M	$2.0 M

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