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FAA Office of NextGen (ANG)

REDAC / NAS Ops

Review of FY2022 – 2025 Proposed Portfolio

Enterprise Human Factors

BLI Number: 1A12B0/1A11B0

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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 program's 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

- Subject Matter Experts: Sabreena Azam, Bill Kaliardos

- Program Support: Wendy Parker

Laboratories:

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

- MITRE Center for Advanced Aviation System Development

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Current FY22 Accomplishments

- Regional Traffic Management Unit (TMU) Decision-Making and Coordination Project Final Report Completed

- Human Readiness Levels Project Kickoff

- TBO Effect on TMU in Terminal Environment – Cognitive Model Method Project Kickoff

- TBO Effect on TMU – Lab Method (phase 2) Project Kickoff

- TMU Regional Decision-Making (phase 2) Project Kickoff

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Anticipated Research in FY23

Planned Research Activities

- Complete Human Factors Impacts of Large ATC Displays Project
- Complete TBO Effect on TMU in Terminal Environment – Cognitive Model Method Project
- Continue TBO Effect on TMU – Lab Method (phase 2) Project
- Complete Regional TMU Decision-Making and Coordination (phase 2) Project
- Complete TBO Training Model (phase 2) Project
- Complete Human Readiness Levels Project
- Begin Air Traffic Control in the Info-Centric NAS Research (phase 1)
- Begin Regional TMU Decision-Making and Coordination (phase 3) Project
- Begin Human Readiness Levels (phase 2) Project

Expected Research Products

- Visually-induced Motion Sickness and Visual Fatigue Report
- Report TBO Potential Workload Impact on TMU in Terminal Environment
- Recommendations Report on Industry Collaboration Best Practices Applicable to Traffic Management
- Enhanced Traffic Management Collaboration Training Effectiveness Assessment Report
- Tailored Human Readiness Levels Guidelines FAA

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Anticipated Research in FY24

Planned Research Activities

- Complete Air Traffic Control in the Info-Centric NAS Research (phase 1)
- Complete Regional TMU Decision-Making and Coordination (phase 3) Project
- Complete Human Readiness Levels (phase 2) Project
- Begin Air Traffic Control in the Info-Centric NAS Research (phase 2)
- Begin Traffic Management in the Info-Centric NAS Research (phase 1)

Expected Research Products

- Assessment of Air Traffic Control Deskilling Effects
- Recommendations for TMU Collaboration Enhancement
- Recommendations for TMU Collaboration Enhancement

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Emerging FY25 Focal Areas

- Increased ATC and Traffic Management Task Automation
  - Supporting Situation Awareness
  - Mitigating Deskilling Effects

- Information Ubiquity
  - Preventing Information Overload
  - Promoting Shared NAS Mental Models Among Stakeholders

- Transition from Coordination to Collaboration
  - Change from Informing of Decisions to Pre-decision Consultation
  - Accelerated Decision-making Cycle
  - Inclusion of New Stakeholders

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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

- Task automation effects
- Shared mental models
- Distributed decision-making

Out Year Funding Requirements

	FY22	FY23	FY24	FY25	FY26	FY27
F&E	$1.0 M	$1.5 M	$1.5 M	$2.0 M	$2.0 M	$2.0 M

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