REDAC SUBCOMMITTEE ON HUMAN FACTORS SUMMER/FALL 2020

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Honeywell

HUMAN FACTORS 2020 SUMMER/FALL MEETING

Meeting:

Held remotely

August 18-19, 2020

Agenda included:

1. Reviewed past year accomplishments
2. Reviewed proposed HF R&D portfolio
3. Briefing from Dr. Bryan Reimer, MIT Researcher on Automation in Automotive
4. Received inputs to update the HF Emerging Issues list

Outcomes:

2 F&Rs

2 Actions

1 Observation

FINDINGS & RECOMMENDATIONS

Finding 1: Data Analytics for Operational Personnel

The implementation of many NextGen initiatives, such as Trajectory Based Operations, drives a tighter coupling of the tasks performed by different FAA facilities. In order to improve interfacility coordination in such cases, improved data analytics support for operator feedback is required. It is important to identify requirements that ensure operational personnel at each facility receive effective visibility into operational performance issues. These requirements need to identify both the information necessary to detect coordination issues and the analyses necessary to diagnose the causes.

Recommendation:

The FAA should conduct research to identify those TBO initiatives where an effective learning feedback loop is needed to coordinate process improvements across facilities. The research should propose potential information requirements to provide operational personnel with the feedback necessary to detect weaknesses in inter-facility coordination and to diagnose the underlying causes.

Consequences:

Without improved data analytics for operator learning and training, the FAA will not be able to identify NextGen initiatives that may result in inter-facility inefficiencies and their associated causes.

FINDINGS & RECOMMENDATIONS

Finding 2: Workforce Proficiency Training Requirements and Risks of Skill Degradation

Due to the COVID-19 pandemic, the operational workforce (e.g. air traffic controllers, maintainers, and pilots) is experiencing backlogs in training, extended periods of work inactivity, increased time periods since training or requirements for retraining. To ensure continuity of operations, there have been temporary extensions of personnel certifications, and new-personnel certification in the current low-traffic environment. However, we do not know how these disruptions affect and exacerbate the issues associated with workforce proficiency. To understand the effectiveness of existing training/proficiency requirements and programs, the FAA needs scientific human performance data to determine how long workforce (e.g. operators and maintainers) skills and knowledge are retained.

Recommendation:

The FAA should conduct research to determine realistic, justifiable, training quantities and frequencies, to inform realistic assessment of current training footprints and intervals, provide guidance on practice needed to maintain proficiency, and the means to restore proficiency after time away from work.

Consequences:

Without scientific data to define proficiency retention, the FAA may not have the data needed to determine the suitability of training footprints and intervals and rely on training standards and requirements that do not address widespread skill degradation risks, such as from pandemics.

ACTIONS

Action 1: Include Human Factors in Landscape Driver Challenges

The subcommittee received an update on the research drivers for the landscape and noted that Human Factors was not specifically identified. The discussion concluded “Human Factors” should be identified as one of the “challenges” considered for each of the drivers, due to its cross-cutting nature. The discussion also identified a need for the landscape to be responsive to emerging issues and represent such responsiveness to emerging issues appropriately. The subcommittee requests that “Human Factors” be added to the list of challenges for each of the drivers, and the FAA develop a plan to address responsiveness to emerging issues. The subcommittee requests an update on this action at the Winter/Spring meeting.

Action 2: Briefing on COVID-related Research Risk Assessment

The subcommittee received a set of briefings on existing and planned research that covered a wide range of topics. The impact of COVID-19 on the execution of research plans was discussed. Impacts include the management of great uncertainty for timelines and budgets. To better understand the risks and potential consequences of these impacts, the subcommittee requests a briefing at the Winter/Spring meeting on how the FAA is mitigating research uncertainty due to COVID-19 impacts.

OBSERVATION

Capture Lessons Learned from Pandemic

The COVID-19 pandemic has introduced an opportunity to capture experiences, challenges, and successes associated with a major global disruption to the aviation sector. The subcommittee applauds the FAA for their participation in the global response to ensure a smooth transition back to full operations. The subcommittee encourages the FAA to collect experiences on how organizations and operations are adapting to change and identify ways to be resilient and proactive in the face of uncertainty. Data on these experiences can enable the FAA to identify and mitigate HF-related risks associated with adapting to and recovering from global disruptions such as the COVID-19 pandemic.