

REDAC Subcommittee on Human Factors SUMMER/FALL 2019 | MINUTES

Meeting date | *August 27-28, 2019*

Meeting location | *JMA Offices, Washington, DC*

Purpose: Review the RE&D Accomplishments and Expectations for Fiscal Year 2019 and Strategic Guidance for Fiscal Year 2022.

Facilitator: Dr. Bill Kaliardos, Designated Federal Official (DFO)

All releasable briefings can be found at: <https://redacdb.faa.gov/browse.cfm>.

Note taker: Dr. Bill Kaliardos

Tuesday, August 27, 2019

Welcome / Opening Comments / Introductions | **Presenters:** *Dr. Barbara Holder, HF Subcommittee Chair, Dr. Bill Kaliardos, DFO, Shelley Yak, FAA Director of William J. Hughes Technical Center, R&D Executive Chair*

Drs. Bill Kaliardos and Barbara Holder welcomed the Subcommittee and started introductions. The members introduced themselves. The Subcommittee reviewed the agenda and the meeting was called to order. Shelley Yak introduced herself and emphasized the importance of the Committee as the Research and Development (R&D) Landscape continues to be developed.

Update from Full Committee Meeting | **Presenter:** *Dr. Barbara Holder, HF Subcommittee Chair*

Dr. Barbara Holder provided an update on the Full Committee Meeting. She reminded the audience of the purpose of the REDAC, emphasizing the benefit their input brings in terms understanding the broader R&D landscape. She listed various goals of the meetings (shown in briefing). She then moved to an overview of the Full Committee meeting. She explained that the Human Factors Emerging Issues list was a focus of the meeting, as this list will be used to inform the content and direction of the R&D Landscape. She also detailed the process for Findings and Recommendations (F&Rs), highlighting there is a new mandate requiring the FAA to respond to the F&Rs within 60 days of the official release.

Research & Development Landscape (Action Item #1) | **Presenter:** *Maureen Molz, Division Manager, NextGen R&D Management Division, ANG-E4*

Maureen Molz and her team briefed on the current state of the Aviation R&D Research Landscape and the tasking they are asking of each of the REDAC subcommittees. She began by defining a landscape as a “collection of research drivers that provides information about their potential impacts to the industry”, with a driver being any force that stimulates R&D investment. She explained that the tasking for the Subcommittee was to help the FAA understand the aviation industry’s strategic focus and provide input on the progress of the Landscape. Maureen asked the Subcommittee to review the list of drivers and identify gaps. The Subcommittee had concerns regarding the approval of the landscape within the FAA. Other concerns include the source of data for the list of drivers, the process to assure the drivers are correct, how the Landscape will be used, among others. The Subcommittee offered their list of Human Factors

Emerging Issues, a list the Subcommittee has been developing over past meetings and is continuing to develop, as their response to the Research Landscape. The Subcommittee determined that the Action Item would remain open, and requested for an update briefing at a future meeting, at which point the Subcommittee will provide further feedback.

FY22 Guidance and Process | Presenter: *Mark Orr, Aviation Safety Research & Development Manager*

Mark Orr briefed the Subcommittee on the AVS research FY22 process. Mark began by explaining that during the FY21 portfolio development, there was a high level of management involvement throughout the process, including the Executive Management Team. As a result, management determined a redesign of the process was required for the FY22 cycle. A working group of managers and R&D members were assembled to redesign this process. The current focuses of the working group include developing 1) AVS-1 Guidance, 2) the checklist/criteria/rubric, and 3) the input template. After the kick-off of drafting proposals, the working groups focus will shift to developing the specifics for prioritization and the specifics for programming the budget to produce the draft portfolio. The current goal is to have an agreed to draft FY22 Portfolio to show at the Winter/Spring Aircraft Safety (SAS) REDAC Meeting, then dovetail this into the full FAA portfolio process. Further details can be found in his briefing accessed via the link above.

Budget Update | Presenter: *Mike Gallivan, Manager, R,E&D Financial Management*

Mike Gallivan updated the Subcommittee on the current state of the FAA budget. He noted that the FY20 Research, Engineering and Development (RE&D) Request was at \$120M, outlining the different line items with highlighted sections based on audience interest. Mike continued by showing out-year targets and the planned requests. Mike Gallivan concluded his briefing thanking the subcommittee and providing contact information for any questions.

FY19 Core Flight Deck & NextGen Flight Deck Research Accomplishments | Presenters: *Dr. Chuck Perala, Scientific & Technical Advisor for Human Factors, Karl Kaufmann, Scientific & Technical Advisor for Human Factors*

Dr. Chuck Perala and Karl Kaufmann briefed the Subcommittee on the FY19 Core Flight Deck Research Accomplishments and the FY19 NextGen Flight Deck Research accomplishments respectively. Each briefing began with a description of the program as well as the team members and primary performers of the work. The briefings outlined the different research requirements that are unique to both the Core and NextGen flight deck groups. Each briefing then provided status updates on a number of ongoing research projects, before outlining research plans for future planned work. Following both briefings, a Subcommittee member noted that there may be unexplored opportunities in integrating Flight Deck and Air Traffic Control (ATC) research. The Subcommittee decided to draft a Finding and Recommendation (F&R) on this topic. Both briefings can be accessed using the online repository.

FY19 Core ATC & NextGen Enterprise ATC Research Accomplishments | Presenters: *Dan Herschler, Scientific & Technical Advisor for Human Factors, Dr. Bill Kaliardos, NextGen Human Factors Integration Lead*

Dan Herschler and Dr. Bill Kaliardos briefed the Subcommittee on the FY19 Core Air Traffic Control (ATC) Research accomplishments and the FY19 NextGen Enterprise ATC Research accomplishments respectively.

Dan began by explaining that the Core ATC program works to improve the safety and efficiency of complex ATC systems by application of R&D to address factors affecting human performance in ATC operations and ATC system maintenance. He briefed the FY19 accomplishments and anticipated FY20 research areas, as well as highlighting emerging areas for FY21. Dan's briefing can be accessed using the online repository listed above.

Dr. Kaliardos briefed the Subcommittee on his NextGen Enterprise ATC program, explaining that it provides integrated guidance on human performance considerations to concept development, validation, and implementation teams. Dr. Kaliardos gave an overview of the program and the associated sponsors and organizations. He gave a brief description of Trajectory Based Operations (TBO), before briefing the anticipated research areas and accomplishments. Following both briefings, a subcommittee member noted that there was no work that focused on Urban Air Mobility (UAM). The Subcommittee decided to draft an F&R on that emphasizes the need to invest in UAM Human Factors research. This briefing can be accessed through the link above.

Findings and Recommendations (F&R) Discussion and Homework Assignments | Presenter *All*

The Subcommittee reviewed and discussed the proposed F&Rs and Action Items. There was discussion surrounding Urban Air Mobility and the emphasis on needed research in this area. There was also discussion about drafting an F&R regarding the AVS research prioritization process. The emphasis is on the need for a process that identifies the necessary human factors research areas. A third F&R was discussed regarding a recommendation for more integrated research between the Flight Deck and ATC Human Factors Budget Line Items (BLIs).

Report out from the Industry Human Factors Roundtable hosted by Alaska Airlines | Presenter: *Captain Rich Loudon, Alaska Airlines*

Captain Rich Loudon briefed the audience on the Industry Human Factors Roundtable hosted by Alaska Airlines. He reviewed the topics covered during the two day conference and noted the industry involvement and collaboration that occurred as a result. The roundtable covered a wide range of topics; Captain Loudon's briefing can be accessed using the online repository listed above.

End of Day 1

Wednesday, August 28th, 2019

ALPA Perspective on Human Factors Research | Presenter: *Captain David McKenney, ALPA*

Captain David McKenney briefed the audience on the ALPA perspective on Human Factors research. The briefing focused on what ALPA views as the different necessary areas of Human Factors research, including Manual Flight Operations, Distance Learning, Resilience, among others. This briefing can be accessed using the online repository listed above.

Discussion on Human Factors Emerging Issues List | Presenter: *All*

The Subcommittee discussed the Human Factors emerging issues list that has been in development over past REDAC meetings. Subcommittee members briefed on emerging issues (Urban Air Mobility, unintended impacts of automation, and maintenance), and the current list was reviewed.

Review of Recommendations and Action Items and Wrap-up | Presenter *All*

The Subcommittee reviewed the proposed list of F&Rs and Action Items. They discussed drafting assignments and agreed that the Human Factors emerging issues would continue to be reviewed and updated. The F&Rs were discussed during the meeting and Action Items developed from this meeting are listed below.

End of Day 2

Action Items

Action 1: UAS Human Factors Research

The Human Factors Subcommittee was briefed previously on a high-level FAA UAS research plan. However, at the Summer/Fall 2019 meeting the Subcommittee became concerned that visibility into the progress of UAS research is reduced. The Subcommittee requests an update on the progress of the FAA UAS Research plan, and specifically on how the plan is being translated into research requirements related to human factors and their associated research requirements.

Action 2: Research Landscape

The landscape presented to the subcommittee at the Summer/Fall 2019 meeting has shown some progress however, based on discussions during the meeting, the subcommittee is concerned the Landscape has not been fully vetted or approved within the agency. The subcommittee requests the FAA report at the Winter/Spring meeting on the following:

- How will the Landscape balance current issues and drivers with emerging issues and drivers?
- What data are being collected and analyzed to define high priority current and emerging issues and drivers?
- How will the Landscape be used to across the agency? How will it inform the R&D needs and portfolio prioritization?
- How does the Landscape and the NARP relate to and inform each other?

Action 3: UAM Human Factors Research

The Human Factors Subcommittee requests a briefing on current UAM research that contains human factors aspects at the Winter/Spring 2020 meeting.

Agenda:**DAY 1 – Tuesday, August 27, 2019**

Time	Topic	Presenter
8:00–8:30	Check in at JMA offices (Suite 420)	
8:30-8:45	Welcome / Opening Comments / Introductions	Dr. Barbara Holder , HF Subcommittee Chair, Dr. Bill Kaliardos , DFO
8:45-9:00	Welcome	Shelley Yak , FAA Director of William J. Hughes Technical Center, REDAC Co-Chair
9:00-9:15	Update from Full Committee Meeting	Dr. Barbara Holder , HF Subcommittee Chair
9:15-9:30	Budget Update	Mike Gallivan , Manager, RE&D Financial Management
9:30-10:00	FY22 Guidance and Process	Mark Orr , Aviation Safety Research & Development Manager
10:00-10:30	Morning Break	
10:30-11:15	FY19 Flight Deck Core Research Accomplishments	Dr. Chuck Perala , Scientific & Technical Advisor for Human Factors
	FY19 NextGen Flight Deck Research Accomplishments	Karl Kaufmann , Scientific & Technical Advisor for Human Factors
11:15-12:00	FY19 ATC Core Research Accomplishments	Dan Herschler , Scientific & Technical Advisor for Human Factors
	FY19 NextGen Enterprise ATC Research Accomplishments	Dr. Bill Kaliardos , NextGen Human Factors Integration Lead
12:00-13:00	Lunch	
13:00-13:30	Research & Development Landscape (Action Item #1)	Maureen Molz , Division Manager, NextGen R&D Management Division, ANG-E4
13:30-14:30	F&R Discussion and Homework Assignments	All
14:30-14:45	Afternoon Break	
14:45-15:15	Report out from the Industry Human Factors Roundtable hosted by Alaska Airlines	Captain Rich Loudon , Alaska Airlines
15:15-16:00	ALPA Perspective on Human Factors Research	Captain David McKenney , ALPA
EVENING	Group Dinner	

DAY 2 – Wednesday, August 28, 2019

Time	Topic	Presenter
8:00-8:30	Check in at JMA offices (Suite 420)	
8:30-9:00	Recap and Review of Homework Assignments	All
9:00-9:15	Update on Flight Deck Information Management Practices (Action Item #2)	Dr. Kathy Abbott , Chief Scientific & Technical Advisor, Flight Deck Human Factors
	Update on the Enterprise ATC Human Factors Program (F&R #2)	Dr. Bill Kaliardos , NextGen Human Factors Integration Lead
9:15-10:15	Discussion on Human Factors Emerging Issues List (F&R #1)	All
10:15-10:30	Break	
10:30-11:15	Discussion on Human Factors Emerging Issues List (F&R #1)	All
11:15-12:00	F&R Discussion and Wrap-up	All
	Meeting Adjourned	

Human Factors Subcommittee Summer/Fall 2019

August 27, 2019

August 28, 2019

Name	Affiliation	Name	Affiliation
Kenneth Allendoerfer	FAA	Maureen Molz	FAA
Carla Hackworth	FAA	Jeff Handel	Delta
Chuck Perala	FAA	Richard Barhyot	NASA
Al Secen	RTCA	Phil Smith	OSU
Dan Herschler	FAA	Steve Lang	CAVAN
Karl Kaufmann	FAA	Rich Loudon	Alaska
Rachel Seely	FAA	Edward Austrian	Fort Hill Group
Lara Schmidt	FAA	Daniel Brock	FAA HQ
David Buczek	FAA	Kevin Comstock	ALPA
Kathy Abbott	FAA	Robert Thomas	ALPA
Kim Cardosi	DOT/Volpe	Leja Collier	ALPA
Jeff Handel	Delta	Karl Kauffmann	FAA
Chris DeSanti	MITRE	Carla Hackworth	FAA
Alan Jacobsen	Boeing	Kenneth Allendoerfer	FAA
Richard Barhyot	NASA	Lara Schmidt	FAA
Phil Smith	OSU	Kathy Abbott	FAA
Steve Lang	CAVAN	Kim Cardossi	DOT/Volpe
Rich Loudon	Alaska	Chris DeSanti	MITRE
Edward Austrian	Fort Hill Group	Alan Jacobsen	Boeing
Jimmy Bruno	FAA	Terry King	FAA
Terry King	FAA/CAMI	Monique Moore	FAA
Daniel Brock	FAA HQ	Bill Kaliardos	FAA
Kevin Comstock	ALPA	Evan Harvey	Human Proof
Robert Thomas	ALPA	Chinita Roundtree-Coleman	FAA
Leja Collier	ALPA		
Shallu Darhele	FAA HQ		
Victor Quach	FAA HQ		
Mark Hale	JMA Solutions		
Mike Gallivan	FAA		
Barbara Holder	Honeywell		
Shelley Yak	FAA		
Maureen Molz	FAA		
David McKenney	ALPA		
Evan Harvey	Human Proof		
Sabreena Azam	FAA HQ		
Monique Moore	FAA		
Tara Holmes	FAA		
Chinita Roundtree-Coleman	FAA		