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2022 Annual Program Review
PRP Feedback

Project Feedback Framework



- General Assessment
- Detailed Assessment
 - Strengths
 - Observations
 - Concerns
 - Major Issues
- Recommendations



Program Review Panel

- Transformative Aviation Concepts Program
 - Dr. John Cavolowsky (Chair) & Dr. Nateri Madavan
- Advanced Air Vehicles Program
 - Dr. Jim Heidmann & Ms. Maureen Kudlac
- Airspace Operations and Safety Program
 - Mr. Akbar Sultan & Ms. Cheryl Quinn
- Integrated Aviation Systems Program
 - Mr. Lee Noble & Ms. Kate McMurtry
- Aerosciences Evaluation and Test Capabilities Program
 - Dr. Ron Colantonio
- ARMD Chief Engineer
 - Mr. Steven “Big Head” Hirshorn with Fluffy, Mittens, and Tiger

Special Thanks to
Jessica Pereira
Laura Kennedy





CST: General Assessment

- Lori has become more comfortable and confident demonstrating strength as the CST project leader over the last several years
- CST project is well-positioned to lead success of the Quesst Mission as well as to further other supersonic research... this is very impressive and impactful work!
- Good to see the well coordinated relationship between the project and the mission integration office regarding key objectives and support... "there is no daylight between the two"

CST: Strengths

- Lori's great – hire her! All of Lori's "voicage" is easily digestible, open, honest and transparent
- "In love" with the Project Plan philosophy...never seen this before
- Cross Program Value: Warms Cavolowsky's heart
 - Appreciate the collaboration with TTT
 - ULI is providing value to CST, and receiving value in return
- **Thorough understanding of Quesst mission:**
 - **Appreciated the link to the risk process to budget encumbrance (helps to manage reserves)**
 - **Risk informed plans enables CST to stay resilient**
- Appreciate how long-term objections were presented upfront and were then validated at the end
- Sound approach for international interaction
- Applaud use of Independent Review Panel for site selection (great perspective)
- Appreciate usage of quiet crew videos telling public story, a "moral boost"





CST: Concerns

- Hiring and maintaining a world class workforce is ever more challenging (not unique to CST)
 - Systems analyst role posted for 3 years, but not filled!
 - How to address this cross-projects, cross-centers?
- Budget
 - **The budget reduction is not a new challenge in FY2022. Reduced budgets were made in Spring 2020 during PPBE FY22 due to low boom budget problem. No context around reduced budgets referenced that impacted work through FY23. Would have been good to present budget runouts.**
 - Early in the brief, scenarios with slips were presented. Did the slips reflect cybersecurity, supply chain issues?
 - Limited investment in emissions given high priority low boom mitigation (question for OAA or mission instead)
 - Is there a stronger need now to support LTO noise and HAE investments given environmental sustainability



CST: Observations

- “Standing Army” needs to be redeployed during Lockheed Martin delays
 - Are we using the slip wisely?
 - Would've like to see delta of what those team members are doing. (opportunity for NASA to use those folks getting ahead on other challenges while waiting to be utilized once the aircraft is available for testing)
- Story Telling:
 - TCs and CCs are highly integrated making it difficult to tell the story of how they all work together. A wiring diagram would be helpful to show connection across the TCs.
- **Value to Community:**
 - **Discussion of delays to meeting CAEP 14 landed flat. 3-year delay is a big problem. Risks to reputation and impact to industry are significant.**
 - **Jim Hileman (FAA) brought context clarity to the importance of robust, quality, and unbiased data**
 - **Must ensure that aggressive MarComm does not undo this essential value**
- UQ and HEC resource requirements need greater clarity



CST: Major Issues

- None



CST: Recommendations

- (b) (5)
- Explore a reset of Quesst MarComm efforts with OCOMM regarding community response bias concerns
- (b) (5)
- (b) (5)



Final Thoughts for AAVP

- The PRP concurs with a recommendation for continuation of AAVP Enduring Projects
- Acquiring and maintaining talented workforce and procuring almost everything are constant challenges for all projects. Share your learnings broadly across programs and the Mission.
- UQ work across ARMD (CST, HTP, TTT) is being conducted by a limited number of available SMEs. We need to develop a strategic ARMD approach to securing UQ skills.
 - Engage Chief Engineer's Office to conduct needs assessment and availability
- Every project has significant High-End Computing requirements, but there is a distinct lack of clarity regarding their specific needs of High-End Computing resources, or the system constraints impacting their access to compute cycles
 - Need to develop a coordinated, cross-program approach to determine long-term HEC capability needs
 - If more compute capability is required, we need to act now. It could take 2 years to get more on the floor.

December 13, 2022

Aeronautics Research Mission Directorate

TO: Decision Memorandum

FROM: Acting Program Director, Advanced Air Vehicles Program, Aeronautics Research Mission Directorate (ARMD)

SUBJECT: Decision Memorandum: 2022 Advanced Air Vehicles (AAV) Project Review Summary with AAVP Program Director Feedback and Guidance

PURPOSE:

The AAV Program Office held its Annual Program Review (APR) October 19-21, 2022 in a hybrid fashion. This review serves as a Continuation Assessment for the AAVP Enduring Projects: Advanced Air Transport Technology (AATT), Commercial Supersonics Technology (CST), Hypersonic Technology (HT), and Revolutionary Vertical Lift Technology (RVLT) per NPR 7120.8A, paragraph 4.2.10.3 & 4.1.2.2. An Enduring Project is one that does not have a defined end date. The APR was chaired by the AAV Program Director with two review panels. The AAVP Performance Review Panel* (PRP) consisted of ARMD Program Directors (PDs), Deputy PDs (DPDs), and the Chief Engineer (CE). The AAV PD convened a panel of non-NASA, government technical management experts as an Independent Review Panel (IRP)** to provide an independent assessment of each project being reviewed. The Hi-rate Composite Aircraft Manufacturing (HiCAM), and Hybrid Thermally Efficient Core (HyTEC) projects were also reviewed during the APR, and a formal Key Decision Point Review will be conducted at a Directorate Program Management Council (DPMC) between their Phase 1 and 2 Development activities.

This Decision Memorandum documents the decisions for the Continuation Assessment by the Program Director. Actions are to be completed no later than the end of FY23 unless otherwise noted, and the Projects will provide a completion report for actions to the program in writing or by formal presentation.

OVERALL:

Across the board during 2022 the AAV Projects did an excellent job. Once again, this Review reinforces the fact that high quality, relevant work is being accomplished. We will continue to strive for continuous improvement in both technical content and project execution. The projects' interaction with industry partners and other government agencies is seen as a tremendously positive and these relationships should be fostered. Strategic alignment with the FAA and DoD to ensure that activities are complimentary should be pursued.

DECISION:

The following AAVP Enduring Projects are approved for Continuation per this review:

- Advanced Air Vehicle Technology (AATT)
- Commercial Supersonics Technology (CST),
- Hypersonic Technology (HT), and
- Revolutionary Vertical Lift Technology (RVLT).

The IRP/PRP provided positive feedback on the performance of the HyTEC and HiCAM projects, and their alignment and importance to the Sustainable Flight National Partnership.

ACTIONS:

AATT

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-

Non-responsive per agreement with FOIA requester

CST

- Work with the Quesst Mission Integration Office and Communications Teams to develop a plan to appropriately inform community first response organizations while avoid biasing X59 Community Survey Data.
- Working with HTP, develop a High-Speed Commercial Strategy (goal SPMR 2024)

HiCAM

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-
-

Non-responsive per agreement with FOIA requester

HTP

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-
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Non-responsive per agreement with FOIA requester

HyTEC

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-
-

Non-responsive per agreement with FOIA requester

RVLT

-
-

Non-responsive per agreement with FOIA requester

The full reports from the projects, PRP and IRP can be found at the following link:

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**JAMES
HEIDMANN**

Digitally signed by JAMES
HEIDMANN
Date: 2022.12.16 16:37:59 -05'00'

Dr. James Heidmann
Advanced Air Vehicle Program Director, Acting
Aeronautics Research Mission Directorate

cc: ARMD/Directorate Program Management Council
AATT/ Project Manager
CST/Project Manager
HTP/Project Manager
HICAM/Project Manager
HYTEC/Project Manager
RVLT/Project Manager

*PRP members: Dr. John Cavolowsky (Chair), Akbar Sultan, Lee Noble, Ron Colantonio, Steve Hirshorn, Dr. Nateri Madavan, Cheryl Quinn, Kate McMurtry, Chris Mouring

**IRP members: Dr James Hileman (FAA, Chair), Dr. Gregory Addington (AFRL), Mr. Bimal Aponso (FAA), Mr. Bruce DeCleene (FAA), Mr. David Friedman (Army), Mr. Robert Guerrero (Air Force), Mr. John Nairus (AFRL), and Dr. James Weber (AFRL)