University-led Strategic Aviation Research

Request for Information (RFI)

Introduction:

NASA Aeronautics Research Mission Directorate (ARMD) has established a Strategic Implementation Plan that sets forth its long-term vision for aeronautical research.[1] The Plan introduces six strategic research and technology thrusts that meet the needs of the aviation community for safe, efficient, flexible, and environmentally sustainable air transportation.

To realize this vision, ARMD seeks to incorporate more strategic partnerships with the academic community. Universities and colleges will have an opportunity to provide national leadership through planning and executing a multi-faceted research portfolio that aligns with ARMD's strategic thrusts. This approach will complement ARMD's ongoing university partnerships that focus on developing new solutions for individual research topics. ARMD seeks to apply this partnership strategy across the full range of its research and technology programs. Academic institutions will independently define the technical challenges needed to address the strategic research thrusts, and will then develop and implement novel approaches to meet those challenges.

By strategically collaborating with the nation's leading universities, NASA will accelerate progress toward achieving high impact outcomes that enable continued US aviation leadership in a time of substantial aviation opportunity and risk. Universities are uniquely positioned to bring together the best and brightest minds from many disciplines and from a broad range of institutions and perspectives to help solve the most complex technical challenges associated with NASA's strategic thrusts. Therefore, university leadership is essential to producing the graduates with the capability to lead the U.S. into the future.

Partnership Features:

ARMD's new strategic partnerships with the academic community promote alignment with NASA in multiple areas: technical relevancy to a strategic thrust, consistency with ARMD's overall approach to planning and measuring progress, and framework for developing impactful research contributions.

Collaborative university research must help advance an ARMD strategic thrust. While university partners may apply a given research capability toward multiple thrusts, they will be asked to explicitly connect their contributions with outcomes in a specific thrust. Partners will independently develop technical challenges that contribute to thrust outcomes. These challenges represent difficult barriers that must be overcome in order to advance the thrust. Universities also develop corresponding success criteria and performance metrics that can be used as a guide to assessing their progress and ultimate completion of the technical challenges. Addressing the most significant aviation problems necessarily requires system-level solutions. Universities are encouraged to develop transformative, multi-disciplinary approaches to address the technical

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[1] National Aeronautics and Space Administration, "NASA Aeronautics Strategic Implementation Plan", *http://www.aeronautics.nasa.gov/pdf/armd-strategic-implementation-plan.pdf*, 2015.

challenges. Where applicable, these approaches may leverage convergent technologies outside of traditional aeronautics disciplines. Universities are expected to produce specific deliverables in the process of meeting the technical challenge, including technologies, validation data, methods, and design tools. Partnerships with other universities and industry are also encouraged.

Summary of ARMD Strategic Implementation Plan:
NASA ARMD has established six strategic research and technology thrusts aligned with the future needs of global aviation and required national aviation capabilities.

Strategic Thrusts Addressed in this RFI:

Safe, Efficient Growth in Global Operations
Enable full NextGen and develop technologies to substantially reduce aircraft safety risks

Innovation in Commercial Supersonic Aircraft
Achieve a low-boom standard

Ultra-efficient Commercial Vehicles
Pioneer technologies for big leaps in efficiency and environmental performance

Transition to Low Carbon Propulsion
Characterize drop-in alternative fuels and pioneer low-carbon propulsion technology

Real-time System-Wide Safety Assurance
Achieve proactive safety management of the integrated aviation system

Assured Autonomy for Aviation Transformation
Develop high impact aviation autonomy applications

For further information regarding the Strategic Thrusts, please refer to the ARMD Strategic Implementation Plan.

Purpose of this RFI:
NASA seeks information within this RFI to support planning and assistance strategy development for new university-led partnerships. Results will provide NASA with preliminary information on overall interest within the academic community. Information provided will also offer insight on ways that NASA can improve further communications on this topic. Based on the response to this RFI, NASA may issue a NASA Research Announcement (NRA) under the Transformative Aeronautics Concepts Program (TACP) for award of grants/cooperative agreements to establish university-led research initiatives associated with one or more of the ARMD strategic thrusts.
This is a Request for Information (RFI) only and does not constitute a commitment, implied or otherwise, that the National Aeronautics and Space Administration (NASA) will issue a NRA or award any funding in this matter. Response to this RFI will are not considered unsolicited

proposals nor will it meet any requirements that may be required should NASA issue a NRA for this iniative. Further, neither NASA nor the Government will be responsible for any cost incurred in furnishing this information.

Responding to this RFI:
Organizations responding to this RFI must be a U.S. University or U.S. University-led partnership

RFI responses must include:
- Name of the primary point of contact for the response
- Position or title of the primary point of contact
- Primary institution(s) or organization affiliation
- Email address
- Phone
- Identification of other key institutions/individuals who collaborated on the RFI response

Please note that RFI responses are not expected to exceed 5 pages in length and should only address information requested below. Use single-spaced, 12-point, Times New Roman font.

RFI Requested Information:
NASA requests responses that address the following:
1. Indicate what strategic thrust area the university (or partnership of universities) may be capable of addressing; if submitting in more than one strategic thrust please address each one in separate responses.
2. A brief summary providing the university's capabilities and qualifications in the proposed thrust area, including the relevant specific areas of expertise and any experimental facilities. For collaborative partnerships, please represent the capabilities and qualifications provided by each institution.
3. Summary information about current or potential research partnerships, e.g., with other universities or industry, in each proposed thrust area.
4. Any information the respondent thinks may help NASA clarify its intent for partnerships concerning university-led research initiatives, consistent with the attributes discussed in this RFI.

Response Submission Deadline:
Responses to this RFI must be submitted no later than 11:59 PM Eastern Standard Time, on July 29, 2015. RFI submissions will be accepted as email attachments only. All responses must be sent to hq-univpartnerships@mail.nasa.gov, with "University Partnerships RFI" in the subject line.

Point of Contact for Inquiries and Submissions:

Inquiries regarding this proposal may be directed by electronic mail to hq-univpartnerships@mail.nasa.gov with "University Partnerships RFI" in the subject line.