Summary of RFI Response to ARMD's University-Led Strategic Aviation Research

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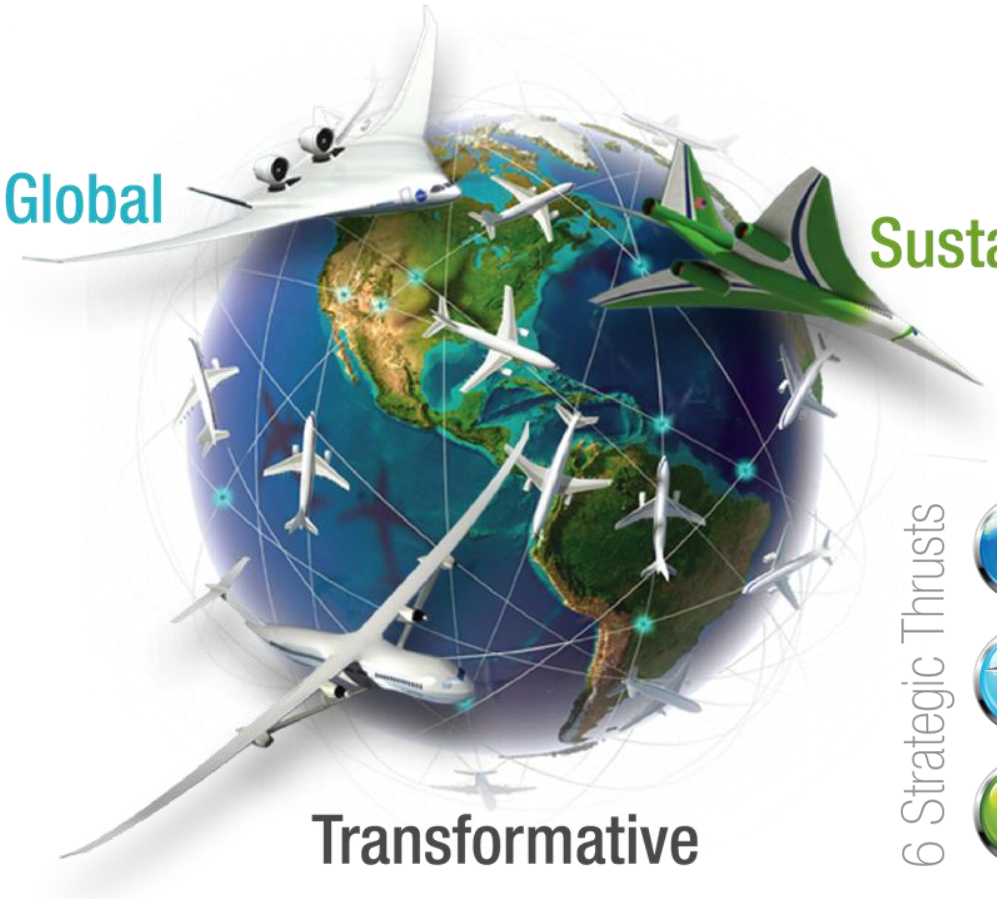
NASA Aeronautics

NASA Aeronautics Vision for Aviation in the 21st Century



6 Strategic Thrusts

- Safe, Efficient Growth in Global Operations
- Transition to Low-Carbon Propulsion
- Innovation in Commercial Supersonic Aircraft
- Real-Time System-Wide Safety Assurance
- Ultra-Efficient Commercial Vehicles
- Assured Autonomy for Aviation Transformation

U.S. leadership for a new era of flight

http://www.aeronautics.nasa.gov/strategic-plan.htm

Context

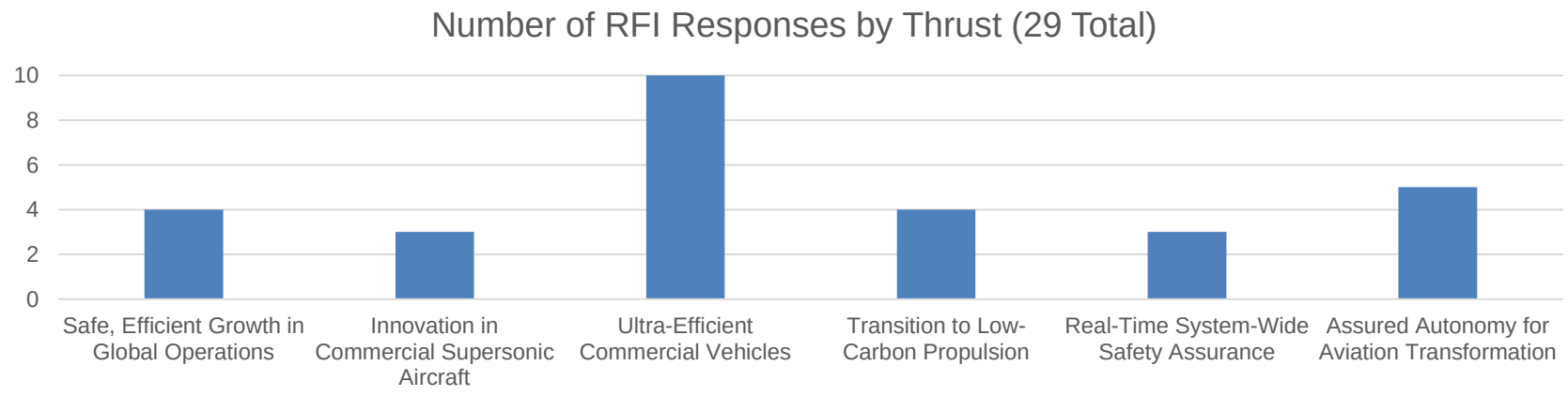
- ARMD Strategic Implementation Plan
  - Defines a set of outcomes that will support continued US aviation leadership
  - Additional investment desired in early stage, convergent innovation
- Partnership
  - ARMD recognizes the value in sharing strengths with other entities to achieve specific outcomes that will benefit our mission
  - Key objectives of ARMD partnership strategy:
    - Leveraging resources to support mutual objectives;
    - Providing access to unique capabilities, resources or data;
    - Facilitating transition of research products to implementation;
    - Synergistically applying complementary knowledge, skills, and facilities to achieve successful results.
- Current University participation in ARMD research
  - Strong involvement via NASA Research Announcements
  - Provides a valued contribution toward technical challenges, but often tied to specific, pre-defined outputs
  - Does not always tap into Universities' full capabilities

Strategy and Approach

- Create “University Aeronautics Leadership” research initiative to:
  - Help solve most complex challenges associated with strategic thrusts;
  - Accelerate progress toward achievement of high impact outcomes;
  - Leverage capability of universities to bring together best and brightest minds across many disciplines.
- Initiative provides opportunity for universities to exercise leadership and contribute to ARMD in a more strategic manner.
- ARMD plans to release a competitive solicitation
  - Proposals expected from individual universities or university-led partnerships
  - Awards aligned with each ARMD Strategic Thrust (as funding allows)
  - Universities will propose their own technical challenges to accomplish strategic thrust outcomes, supported by an innovative, multi-disciplinary research portfolio to address those challenges
  - Universities maintain technical independence and normal peer review, with NASA providing strategic oversight
- To prepare for solicitation, ARMD released RFI to university community - responses received by end of July

Request for Information (RFI) – Background and Demographics

- Information requested from universities included:
  - Research areas of interest and corresponding ARMD strategic thrust
  - University capabilities and qualifications
  - Current or potential partnerships
  - Areas of suggested clarification for further NASA communication on university-led strategic research
- ARMD received 29 responses from 18 different universities across 14 states



RFI – Summary of Responses Received (1/2)

- Recurring Research Themes
  - UAS integration in the NAS
  - Lower cost manufacturing
  - Improved turbulence modeling to support design of efficient airframes and propulsion systems
  - Electric and hybrid-electric propulsion to reduce emissions
  - Combustion models for alternative fuels
  - Human-systems integration and safety assurance for increasingly autonomous systems
- Example University Facilities and Capabilities
  - Wind tunnels, propulsion system test facilities, UAS operations test sites, high-speed computing, advanced simulation and numerical modeling
- Types of Potential Partnerships
  - Other universities; airframe, engine, avionics, and UAS manufacturers; IT industry; state governments, regional public-private partnerships

RFI - Summary of Responses Received (2/2)

- Clarifications Requested from NASA
  - Preferred level of collaboration with NASA researchers
  - Desired level of technical risk for proposed research areas
  - Expected level of teaming
  - Duration of sponsorship
  - NASA's role in establishing forums for collaboration and review
  - NASA technical objectives provided with sufficient detail to promote desired outcomes and sufficient flexibility to support innovation

University-Led Strategic Aviation Research – Next Steps

- ARMD working on NRA solicitation for competitive selection of university-led strategic aviation research
- Solicitation will have some different attributes from those used in conventional NRAs
  - Emphasis on strategic level planning and execution (entire technical challenges rather than individual research topics)
  - Proposal leads will be limited to educational institutions
  - Research will be managed at program office level
- ARMD working with procurement and legal offices to ensure new type of solicitation complies with procurement regulations and NASA policies, consistent with intended strategy