National Aeronautics and Space Administration

Office of the Administrator
Washington, DC 20546-0001

June 4, 2018

General Lester L. Lyles
Chair
NASA Advisory Council
Washington, DC 20546

Dear General Lyles:

Enclosed is NASA's response to a recommendation from the NASA Advisory Council meeting held on March 28-29, 2018, at NASA Headquarters. Please do not hesitate to contact me if the Council would like further background on the response. I appreciate the Council's thoughtful consideration leading to the recommendations and welcome its continued findings, recommendations, and advice concerning the U.S. civil space program.

I look forward to working closely with you and members of the Council in the future.

Sincerely,

James F. Bridenstine
Administrator

Enclosure:
2018-01-01 (TIEC-01) Organizational Options to Promote Technology Investment and University Grants and Fellowships

NASA Advisory Council Recommendation

Organizational Options to Promote Technology Investment and University Grants and Fellowships 2018-01-01 (TIEC-01)

Recommendation:
The Council recommends that the NASA Administrator task the Acting Associate Administrator to develop and present to the Council mechanisms and/or a hybrid organizational option that promotes appropriate levels of investment in early and mid-stage technology development and University grants and fellowships. This includes defining metrics to assess effectiveness.

Major Reasons for the Recommendation:

- NASA needs cutting edge technologies to undertake its missions.
  - NASA "grand" missions are technology-enabled.
  - James Webb Space Telescope (JWST), Mars Science Laboratory (MSL), International Space Station (ISS) - type of work NASA should be doing.
  - Demonstrates NASA/U.S. technical leadership.
  - Current missions are based on technologies developed through investments made over several decades.

- In the timeframe FY 2005 – FY 2009, technology budgets (basic research -$500M; applied research -$900M) were drastically reduced.
  - NASA technology shelf depleted over the last decade due to a lack of investment. NASA has begun to correct this over the last three years (e.g., Space Technology Program (STP)).
  - A number of Administrators in the past have organizationally fenced off the budget for "seed corn" and crosscutting investments that includes research and technology and system-level demonstrations to preserve options for the future.

- To reverse this decline, NASA established the Office of Chief Technologist (OCT) in 2010, and the Space Technology Mission Directorate (STMD) in 2013, and rebuilt the crosscutting technology program as well as made focused investments in technology development in the Human Exploration and Operations Mission Directorate (HEOMD) and Science Mission Directorate (SMD).

- STMD university engagement.
  - During the mid-2000s, NASA's university engineering research programs were decimated.
  - STMD reengaged the academic community in engineering research and technology development and has rekindled interest in NASA among students, especially at the graduate level.
  - If appropriate mechanisms are not put in place, NASA interactions with universities will be adversely affected as in the past.

Enclosure

Consequences of No Action on This Recommendation:
Narrows technology options for future programs and adversely affects human capital development for NASA and its contractors.

NASA Response:
NASA concurs. This recommendation is being addressed within the larger context of an Agency restructuring activity led by the Associate Administrator. As soon as the Administrator makes a final decision on restructuring the Agency and has briefed various stakeholders, the Associate Administrator will brief the NASA Advisory Council on the Agency restructuring including how the new structure will ensure appropriate levels of investment in early and mid-stage technology development and university grants and fellowships. It is anticipated this briefing will occur at the NASA Advisory Council meeting this summer.