



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)
HEADQUARTERS
SPACE TECHNOLOGY MISSION DIRECTORATE
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**SPACE TECHNOLOGY MISSION DIRECTORATE,
VIRTUAL INSTITUTES – REQUEST FOR INFORMATION**

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Request for Information Issued: *September 9, 2015*
Request for Information Due: ***October 21, 2015 (5:00PM Eastern)***

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Virtual Institutes – Request for Information

Responders are reminded:

REQUEST FOR INFORMATION (RFI): THIS IS *NOT* A REQUEST FOR PROPOSAL, QUOTATION, OR INVITATION TO BID NOTICE.

1.0 Introduction

The National Aeronautics and Space Administration (NASA) continually looks for ways to help advance the development of U.S. aerospace technology. With the accelerating pace of innovation, NASA seeks to better understand opportunities for early technology research and development (R&D), especially in partnership with academia. In particular, NASA is interested in the potential benefits of forming virtual institutes to facilitate research and technology advancements from U.S. academic organizations. A virtual institute is an organizational model allowing distributed participation by experts in academia, not-for-profit organizations, and individual researchers. It enables coordination and cooperation without requiring participants to be collocated.

NASA's Space Technology Mission Directorate (STMD) already has multiple programs engaged in excellent work with university researchers, most notably through the Space Technology Research Grants Program (STRG). However, NASA is considering the possibility of establishing virtual institutes to complement the individual research grants and project opportunities already offered in STMD programs. Through this Request for Information (RFI), NASA seeks input on the use of academia-based virtual institutes to advance promising technology research avenues; the manner to implement and manage such virtual institutes; the identification of organizations that might be interested in leading, managing, facilitating, or participating in a virtual institute; and recommended processes that would enable more efficient and effective partnership and research progress.

Note: This RFI was originally released on May 22, 2015 and is being re-released now to provide opportunity for additional responses. Responses received under the previous RFI need not be submitted again, they will be reviewed together with new responses.

2.0 Virtual Institutes

Following results from this RFI, NASA may seek to establish one or more virtual institutes to work with academia or not-for-profit organizations for research and early stage technology development aimed at goals or challenges of significant importance to future

aerospace endeavors. NASA does not envision creating virtual institutes to support the qualification or operations of aerospace missions or systems, but instead views the role of virtual institutes as fostering more basic R&D within particular technology areas of strong interest to the US aerospace enterprise, or those areas experiencing emergent and dramatic change with potential future aerospace applications.

One feature of the virtual institute approach that is of interest to STMD is the possibility of undertaking larger, more complex, multi-disciplinary research efforts. A virtual institute may undertake a series of coordinated research tasks more easily than attempting such coordination through separate STMD solicitations or topics, with each proposal independently submitted and evaluated. A virtual institute may involve experts from a range of technical fields using a single research structure to address a technical challenge that requires cross discipline integration. For research areas of overlapping interest, this approach could significantly increase partnerships between NASA, other government agencies, industry, and academia, enabling greater progress and benefit for all involved. In contrast to a series of separate solicitations, a virtual institute may focus a coordinated set of R&D efforts towards critical capabilities for future aerospace missions, and maintain that focus for several years.

STMD is also interested in the potential of virtual institutes to expand the technical scope and network of participants. Innovative solutions sometimes arise from different thinking and new approaches, so a virtual institute approach may provide significant advantages by involving experts at organizations that do not typically work closely with NASA, or in disciplines that do not commonly coordinate or collaborate.

Although not required as part of any suggested R&D approach, NASA seeks to understand any benefits (especially in terms of affordability) in utilizing government facilities and personnel to accomplish the goals of the potential effort. STMD is also interested in any potential external funding, resource, or research contributions that might enhance or facilitate the virtual institute efforts.

3.0 Information Requested

The responses to this RFI should include the following information:

- **Organizational Information:** Organization name and address, point-of-contact name, title, e-mail address, phone number, and non-profit status.
- **Technology R&D Area:** Provide a detailed description of suggested topic areas, including the main goal or problem under consideration, the expected benefits of

implementing a virtual institute to tackle the challenges in the proposed topic areas, and differences relative to current approaches or other proposed solutions.

- **Relevant R&D History:** Previous related R&D efforts and funding sources, previous experience participating in or especially managing other virtual institutes, previous involvement in collaboration with multiple US academic institutions, and previous involvement in contractual work for a US government organization.
- **Virtual Institute Management and Roles:** How should NASA manage and organize the proposed virtual institutes? Explain the business model(s) involved, and clarify your organization's interest in leading, managing or otherwise participating in a NASA virtual institute. Eligible organizations to manage or facilitate the proposed virtual institutes include academic institutions, academic consortiums, and other not-for-profit research organizations. Describe the benefits of utilizing external management, as opposed to NASA internally managing such institutes. Describe the expected overhead involved in using an external non-profit to manage a virtual institute. Identify other organizations that might either hold significant interest or offer a specific advantage in participating in the proposed virtual institute. It is acceptable to describe general kinds of organization and the rationale for recommending them, however specific examples are encouraged.
- **Technology R&D Approach:** Describe in detail the suggested approach to implementing the virtual institute. Recommend the structure and organization of the virtual institute and relationships between NASA, the virtual institute, participating organizations and individual researchers. What kinds of R&D task or award structures would the virtual institute undertake, and how would the virtual institute and/or NASA identify and select such awards or tasks? Include recommendations for an approximate budget range for a viable virtual institute as well as the individual award amounts. Describe timing for both research tasks and the entire virtual institute effort. STMD envisions virtual institutes designed to address specific research goals in a reasonable time frame, as opposed to open-ended virtual institutes that would run indefinitely. Upon success or failure of their stated goals they would either end as planned, or continue by obtaining funding from non-government entities – e.g., a commercially sponsored institute. Thus NASA is interested in how the structure and approach to such problem-specific virtual institutes might differ from other more open-ended virtual institutes. Describe the needed funding profile, the expected number of participants, and any milestone structures or phasing strategies. NASA envisions using the virtual institute model where collocation at a single university or regional center is not required, thus allowing distributed participation of academic and other organizations, and individual researchers. However, NASA is interested in understanding the pros and cons of this virtual institute model in the context of specific technology R&D areas.
- **Potential NASA Contributions and Partnerships:** List the expertise and support (including both labor and facilities) desired from NASA (if any). Explain any advantages

or disadvantages for leveraging NASA personnel, facilities or capabilities, as well as the likelihood of any funding or resource contributions to complete the work.

- **Forward Path Assessment:** Discuss the likely path forward for the research and key technologies once the virtual institute goals are completed. Explain how the proposed virtual institute efforts would enable sufficient readiness for follow-on development or other opportunities, and how this progression would significantly improve future aerospace capabilities. Finally, describe the overall value proposition or return on investment of the virtual institute – that is, increased performance capabilities, reduced cost or risk, shorter development schedules, or other significant benefits such as spin-off technologies, STEM education, public outreach, or international collaboration.

4.0 Submitting Responses

Responses are limited to no more than 10 pages and should be uploaded as a single PDF file attachment not to exceed 10MB at the NPIRES web site (<http://nspires.nasaprs.com>) by October 21, 2015 (5:00pm Eastern). Note that responses to this RFI may be submitted within NSPIRES directly by the PI; no action by an organization's AOR is required to submit a response. The information provided in response to this RFI will not be disclosed publicly or used outside of the government for any purposes.

The information is requested for planning purposes only, subject to Federal Acquisition Regulation (FAR) Clause 52.215-3, entitled "Solicitation for Information for Planning Purposes." While the government may use the information obtained through this RFI to develop a subsequent solicitation seeking private/public partnerships, the release of this RFI does not guarantee that the government will issue a solicitation in this area nor does it obligate the government to invest any resources specific to the targeted technology area.