

To: CMU Researchers
From: Prof. Burak Ozdoganlar, PITA Co-Director, and Colleen Mantini, Associate Director
Date: September 9, 2016
Subject: PITA Request for Proposals – Fiscal Year 2017

Summary:

- The deadline for the proposal submissions is November 3, 2016 (11:59 pm).
- New online tool will be used to submit proposals and commitment letters.

Background

The Pennsylvania Infrastructure Technology Alliance (PITA) is collaboration among the Pennsylvania (PA) Department of Community and Economic Development (DCED), the Advanced Technology for Large Structural Systems (ATLSS) Engineering Research Center at Lehigh University, and the Engineering Research Accelerator at Carnegie Mellon University. The mission of the PITA Program is to assist the Commonwealth of PA and its companies in increasing operating efficiency and enhancing economic development by:

- 1) Conducting technology development projects with PA companies;
- 2) Developing technology leading to new PA companies;
- 3) Conducting educational outreach programs for the benefit of PA companies and students;
- 4) Seeding research and technology development projects that attract funding from other sources;
- 5) Creating an environment linking PA companies, agencies and students to increase the creation and retention of high paying jobs in the Commonwealth; and
- 6) Enabling PA universities to remain at the forefront of engineering research and education.

Call for Proposals

PITA funding for FY17 has been provided to the Engineering Research Accelerator at CMU by the Commonwealth of Pennsylvania. The Accelerator will be accepting PITA proposals from September 19, 2016 through November 3, 2016. **The Technical Proposal Template must be submitted through an online form on the PITA website (<http://pitapa.org/>), with the PITA Cost Proposal Form and industrial letter(s) of support uploaded on the website as well.** We expect to issue approval memos for selected projects by early January.

Proposals for PITA projects must fit within the 7 Technology Focus Areas listed below. These Focus Areas reflect key infrastructure domain areas of interest to the Commonwealth. The domain areas include:

- Transportation Systems
- Telecommunications and Information Technology
- Facilities
- Water Systems
- Energy and Environment
- Public Health and Medicine
- Hazard Mitigation and Disaster Recovery

Technical examples that would fit within each domain are provided in Appendix A to this letter. A list of previously funded PITA projects can be found at <http://pitapa.org/>.

We invite proposals that satisfy the PITA mission of assisting the Commonwealth of PA and its companies in increasing operating efficiency and enhancing economic development by:

- 1) Conducting technology development projects with PA companies;
- 2) Developing technology leading to new PA companies;
- 3) Conducting educational outreach programs for the benefit of PA companies and students;
- 4) Seeding research and technology development projects that attract funding from other sources;
- 5) Creating an environment linking PA companies, agencies and students to increase the creation and retention of high paying jobs in the Commonwealth; and
- 6) Enabling PA universities to remain at the forefront of engineering research and education.

Project Requirements

The anticipated start date for selected projects will be January 1, 2017. The typical award period will run between January 1, 2017 to December 31, 2017. PITA proposals for this year can request up to \$70,000 from PITA, and are required to provide leverage (matching) funds at a minimum of \$2 for every \$1 of PITA funding.

Proposal Review Criteria

Each submitted proposal will be reviewed under a common set of criteria outlined below. The evaluation criteria include PA industry, agency or university involvement; student involvement; type and amount of leverage funding (in the order of priority: cash, donations, and in-kind); technical merit; and potential for enhancing economic development in the Commonwealth.

In general, involvement of a PA company or agency, along with a PA university, is a requirement for the submission. PITA emphasizes the “Active Participation of Pennsylvania Companies” (see #1 below). For collaborative projects, PIs are required to supply “support letters” from the participating Pennsylvania companies as an attachment to the proposal. The support letter should discuss the impact of the research project on its organization and identify the financial leverage provided by the organization. Note that for leverage funding to be considered as part of the budget proposal, the company support letter **must** quantify the direct cash leverage value and/or the donation value of each in-kind activity. *In-kind support will not be counted as leverage unless there is a detailed list of the in-kind donation(s) and the associated monetary value included in the company support letter* (see Appendix B for a sample leverage calculation). Additionally, PIs are required to submit a contact name and full address for a member of the participating company to serve as the company’s PITA point-of-contact for the duration of the project. The point-of-contact will be invited to attend PITA events during the course of the project, and will be asked to provide feedback on the PITA program. Language from the support letter may be included in reports to the program sponsor.

Proposed projects with strong technical content and/or innovation, significant impact on a Pennsylvania organization, and with the following features have the best chance to be selected for funding (in general order of importance):

1. **Active Participation of Pennsylvania Companies with projects benefiting either established Pennsylvania-based companies or start-ups with new technologies:** Examples of active participation include cash cost matching, equipment/material donations, and in-kind use of company facilities, equipment, materials, and/or personnel to conduct experiments, demonstrations, or other research tasks directly related to the project. As noted previously, in-kind contributions from organizations must be quantified on company letterhead to be considered as leverage funding. The support letters from industry must explicitly list (preferably in a table format) the activities the company will undertake in support of the project along with the monetary value of each of those activities (see Appendix B for a sample leverage calculation). Cash cost matching is particularly encouraged for projects that partner with larger, more established Pennsylvania companies. Any cost match that is provided by the industry

participant should be administered through a Carnegie Mellon University account.

2. **Active Participation of Graduate and/or Undergraduate Students:** A key element of the mission of PITA is to link students with Pennsylvania companies and agencies to increase the retention of well-educated students in the Commonwealth. Projects with clear plans for interaction of graduate students (preference will be given to PhD students) and/or undergraduate students with Pennsylvania companies are strongly encouraged.
3. **Interdepartmental Collaboration and Clustering:** Projects with clear plans for collaboration with two or more PI's from different departments are encouraged. Additionally, technical interactions between two or more PITA proposals to promote research clustering may be proposed. However, each PITA proposal should target a unique description and anticipated results that can be achieved independent of other proposals.
4. **Leveraged Funds:** Leveraged funds fall into four broad categories (in general order of importance):
 - a. New cost matching from Pennsylvania industrial partners (specific to the current PITA proposal)
 - b. Existing cost matching from Pennsylvania industrial partners related to the proposed project goals (exist independent of the current PITA proposal)
 - c. New cost matching from non-Pennsylvania sources (e.g. federal government, out-of-state industrial partners) (specific to the current PITA proposal)
 - d. Existing funds related to the proposed project goals that do not fall into the categories above and that are not from Pennsylvania government sources (exist independently of the current PITA proposal).

Each PITA project is required to have \$2 of expended leveraged funds for each \$1 of expended PITA funds. The leveraged funds identified in a project proposal must be in place before PITA funds are released to the project and must be expended during the period of performance of the project. Also, the relationship of leveraged funds to the project must be stated in the proposal (that is, how the funds will be used and in what aspects of the project).

5. **Follow-on Funds:** Follow-on funds are generated from future grants or contracts that result from concepts or technologies enabled by PITA funding. The proposal should briefly outline any existing plans to seek follow-on funds based on the project. PIs are also asked to submit information on follow-on funding enabled by PITA grants received in prior years.
6. **Budget:** PITA funds cannot be used to support faculty salaries for tenured or tenure-track faculty, although faculty salary from non-PITA (non-state) sources can be included as leverage funds for the project. Research Track Faculty can request a maximum of 1 month salary from PITA. Budgets should place an emphasis on graduate and undergraduate student effort. Leverage sources should be clearly identified.
7. **Responsible Reporting of PITA Metrics from Past Projects:** The PITA Program is required by its sponsor, the PA Department of Community and Economic Development (DCED), to conduct project reporting and impact surveys every year during the project period, and to continue to update impact information for a total of up to five years for each project. For PIs who have received prior PITA funding, responsiveness to providing PITA metrics and the associated information on past projects will be taken under consideration.

Reporting and Metrics

If your project is funded, the PITA program will require project PIs to assist in identifying and measuring PITA program effectiveness **once per year for up to five years (determined by DCED requirements) after the completion of the project**, including the following:

- Providing university impact information (e.g., students involved, patents, publications, presentations, leveraged funds, follow-on funds)

- Assisting PITA staff in collecting economic impact information (PA companies and agencies involved and economic impact at these companies and agencies) for the project.
- Identifying PITA and DCED as project sponsors in all project presentations, publications, and discussions of the project with the media.

Please note that overdue metrics reports during and following the funding period will prevent the PI and co-PIs from receiving new PITA awards.

Submittal and Questions

The deadline for submitting your proposal is November 3, 2016 at 11:59 pm. Please submit proposals via the online form on the PITA website (<http://pitapa.org/>) and upload the Cost Proposal Form and Industrial Letters of Support. If you have updates/edits to your proposal after you submit it and *prior the November 3, 2016 deadline*, please email Colleen Mantini *before* you re-submit your proposal with the updated information. No new proposals or proposal updates will be accepted after the November 3rd deadline. Questions regarding the proposal content should be addressed to either Colleen Mantini at cmantini@cmu.edu or Prof. Burak Ozdoganlar at ozdoganlar@cmu.edu.

APPENDIX A - Technology Focus Areas

PITA unites the physical and informational infrastructure expertise at Carnegie Mellon and Lehigh Universities with the capabilities and needs of Pennsylvania companies and agencies to develop solutions to some of the Commonwealth's most serious infrastructure problems which impact economic growth and quality of life. Strategic technology focus areas that have been developed in consultation with Industry Advisory Board members are as follows, along with some examples (note the examples are not all inclusive) for each area:

- **Transportation Systems:** Safe and efficient highways, bridges, tunnels, mass transit systems, railways and airports.
- **Telecommunications and Information Technology:** Secure information technology systems that can withstand both intentional attacks and accidental errors.
- **Facilities:** Facilities can include permanent and semi-permanent real property assets required to support a system, including studies to define types of facilities or facility improvements, location, space needs, environmental and security requirements, and equipment. It includes facilities for training, equipment storage, maintenance, supply storage, and so forth.
- **Water Systems:** Protection and restoration of water resources to provide an adequate drinking water supply; treatment and control tools to improve water quality; and innovative technology for monitoring, managing, and operating critical waterway infrastructure (dams, locks and bridges).
- **Energy and Environment:** Clean, affordable and sustainable energy sources; reliable delivery of energy through electrical grids and natural gas pipelines; and efficient transmission and use of energy.
- **Public Health and Medicine:** Healthcare technologies to save lives, to improve patient quality of life, and to reduce healthcare costs.
- **Hazard Mitigation and Disaster Recovery:** Mitigation of impacts from natural hazards (floods, hurricanes, tornados, earthquakes) as well as other hazards, such as explosions and fires; and infrastructure systems that permit continued operation after a hazardous event.

APPENDIX B - PITA Application Check List

INSTRUCTIONS: Please use this form as a guide to ensure that all items are provided for your PITA proposal submission. Please submit your proposal via the online application at <http://pitapa.org/> and upload the budget and letters of support by November 3, 2016.

Application Components

Technical Proposal Form

This form is to be completed online and includes the following:

- Project Title
- Technical Focus Area
- Names and contact information for CMU Research Team (PI, Co-PI, Graduate and/or Undergraduate Students)
- Names and contact information for non-CMU Project Participants (Industrial partners, Governmental partners and/or other University partners)
- Executive Summary (Abstract) of Project limited to 300 words
- Description of the Project **limited to 3 pages including any figures/tables; Must use Times New Roman (or Times) font with 11 pt. or larger font size;** Use 1 inch margins for the pages.
- Anticipated Results limited to 200 words
- Strategy for Follow-on Funding for the Project limited to 200 words
- Relationship to PITA Goals and Potential Impacts on PA limited to 300 words
- Recent PITA Funding and Associated Results limited to 300 words:
 - Include all funded PITA award titles, partner companies, a short project description (2-3 sentences), and impact (students involved; follow on funding sources and \$ amounts; references for the published papers) for all PITA projects (for both the PI and the co-PI(s)) for the last 3 years of PITA cycles. If you choose, you can include other PITA projects within the last 10 years, but this is not a requirement.
- Justification for budgetary items (outline need for PITA funding for personnel/materials, etc. in the project and describe the relationship of internal leverage funds to the project) limited to 250 words

Budget Template

This form must be uploaded on the PITA website in an Excel format. (***There is No SPEX submission required.**)

Industry Letter(s) of Support

Letter(s) must be uploaded on the PITA website as a single PDF file. The support letters must explicitly list and describe the activities (preferably in a table format) the company will undertake in support of the project along with the monetary value of each of those activities. See example below.

In-Kind Donation Category	In-Kind Donation Description	Value of Donation
Material	Sensing hardware for testbed (market value for 75 units)	\$20,500
Labor	120 hours of Engineering labor for field testing and analysis at \$200/hour	\$24,000
Equipment	100 hours of access to XYZ Machine for sample testing at \$250/hour	\$25,000
Travel	Travel to Philadelphia for project presentation at XYZ Conference	\$500
TOTAL		\$70,000

Optional Documentation

- Applicable IRB/IACUC Documents
- Applicable Sub-awards