



NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 19-026

Dear Colleague Letter: Supporting Transition to Practice Supplemental Funding Requests in the NSF Cyber-Physical Systems and Smart and Connected Communities Programs

December 6, 2018

Dear Colleagues:

Through this Dear Colleague Letter (DCL), the National Science Foundation's (NSF) Directorate for Computer and Information Science and Engineering (CISE) wishes to notify the community of its intention to support **Transition to Practice (TTP) supplemental funding requests for active awards funded through its Cyber-Physical Systems (CPS) and Smart and Connected Communities (S&CC) programs**. Funded TTP supplements will provide support for periods of up to two years. Supplemental funding requests may not exceed more than one-third of the original award amount or \$400,000, whichever is less.

Foundational research is transforming engineered systems and driving innovation in a wide variety of application domains, thereby enabling new levels of economic opportunity and growth, safety and security, health and wellness, and overall quality of life in the Nation's local communities. With this DCL, NSF is inviting supplemental funding requests for high-impact TTP activities that can enable on-going CPS or S&CC projects to go beyond their original, planned research activities.

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TTP activities relevant to each of the programs could include, but are not limited to, the following:

- In the case of active CPS awards that do not include a previously funded TTP option:

- Accelerated maturation of the research technology readiness level, moving from laboratory and subscale deployment to integration in operational CPS in one or more application domains; and/or
- Integration of research with one or more industrial or other transition partner(s), thereby demonstrating real-world utilization in an operational environment.
- In the case of active S&CC awards:
 - Expanding pilot activities to one or more communities—which could be in a new city, town, or region—considering the unique character(s) and challenge(s) of that (those) new community(ies);
 - Increasing the scale of the research beyond what was envisioned in the original project, which may create new technological and social challenges that would need to be overcome for successful integration within a community; and/or
 - Partnering with industry, as well as a community including a state or local government, to harden or commercialize the technology or approach emerging from the research project for performance in a larger, real-world context.

These TTP supplements are appropriate for CPS and S&CC projects that have demonstrated success or potential for success in their outcomes to date, and where one or more of the activities specified in the supplemental funding requests will significantly strengthen the outcomes beyond the already-funded projects. Any software developed as part of funded supplements is required to be released under an open source license listed by the Open Source Initiative (<http://www.opensource.org/>).

All supplemental funding requests will be subject to external review pursuant to the NSF merit review criteria of Intellectual Merit and Broader Impacts described in the NSF [Proposal and Award Policies and Procedures Guide \(PAPPG\)](#). Each supplement funding request must follow the guidance specified in PAPPG Chapter VI.E.4 and must address the following items as part of the summary of the proposed work and the justification of the need for supplemental funds:

- Summary of the current CPS or S&CC award identifying key research activities and accomplishments including vision and goals spanning intellectual merit and broader impacts;
- Status of the current CPS or S&CC award, including its successes, limitations, and a compelling justification why there is a need for a TTP supplement in the context of a needed capability and potential impact;
- A work plan describing the proposed research activities, along with the goals, milestones, and predicted outcomes; how the activities will expand the current project's research and development activities; how these activities will address the needed capabilities and lead to potential impact; and the appropriateness of the supplemental funding request to the proposed scope and scale of the work;

A description of the project team that articulates the readiness of the academic, community, and/or industry stakeholders, potentially including additional members from the original award, to carry out the proposed expanded effort as well as clear identification of transition partners; and

- An evaluation plan outlining tangible metrics to assess the outcomes of the proposed TTP activities, how these outcomes will inform the potential for transition including transferability and/or scalability beyond the original project, and the possible risk(s) and associated mitigation approach(es).

Principal Investigators (PIs) may find great relevance in TTP where the transition is international, including in the developing world. A supplemental funding request that includes an international component must also include a U.S.-based plan for TTP, and PIs are encouraged to explore externally-driven funding opportunities to support the international component, which may include an international collaborator. One opportunity to consider is the U.S. Agency for International Development's [Partnerships for Enhanced Engagement in Research \(PEER\) program](#), which supports researchers in developing countries to [partner with U.S.-based researchers with active federal research awards](#), including from NSF, to work together on research or capacity building.

The deadline for submission of supplemental funding requests for consideration in fiscal year (FY) 2019 is March 15, 2019, but earlier submissions are encouraged.

PIs interested in submitting TTP supplemental funding requests (or with other questions pertaining to this DCL) are strongly encouraged to contact one of the following NSF/CISE program directors prior to submitting:

- David Corman, Program Director, CISE/CNS, telephone: (703) 292-8754, email: dcorman@nsf.gov;
- Sylvia Spengler, Program Director, CISE/IIS, telephone: (703) 292-8930, email: sspengle@nsf.gov;
- Jonathan Sprinkle, Program Director, CISE/CNS, telephone: (703) 292-8719, email: jsprinkl@nsf.gov; and
- Ralph Wachter, Program Director, CISE/CNS, telephone: (703) 292-8950, email: rwachter@nsf.gov.

Sincerely,

Jim Kurose
Assistant Director, CISE
National Science Foundation