

1.

This goal of this presentation is to highlight key requirements of the National Science Foundation's FY 2019 solicitation number NSF 19-541: Future of Work at the Human-Technology Frontier: Core Research. The intent is to provide guidance and clarification for prospective PIs who wish to submit a proposal that is responsive to the solicitation by the March 6th deadline. This presentation is not a substitute for reading the solicitation. All PIs should read the solicitation carefully as the solicitation establishes the definitive requirements for the 2019 competition.

2.

* In 2016 the NSF unveiled ten bold, long-term "Big Ideas" for future investment at the frontiers of science and engineering.

* The Big Ideas represent unique opportunities to position our Nation at the cutting edge of global science and engineering leadership.

* In 2019, NSF will invest \$30 million in each Big Idea and continue to identify and support emerging opportunities for U.S. leadership

* The ***Future of Work at the Human-Technology Frontier*** (FW-HTF), one of the 10 Big Ideas, is a mechanism by which NSF is responding to the challenges and opportunities for the future of jobs and work.

3.

The Challenge:

* The landscape of jobs and work is changing at unprecedented speed, enabled by advances in computer and engineering technologies such as artificial intelligence and robotics, deeper understanding of societal and environmental change, advances in the learning sciences, pervasive, intelligent, and autonomous systems, and new conceptions of work and workplaces.

* This technological and scientific revolution offers historical opportunities, but also comes with risks, including jobs lost to automation, strains on educational resources, security & privacy threats, algorithmic bias, and overdependence on technology & the erosion of human skills.

4.

The Future of Work at the Human-Technology Frontier Vision

Through this solicitation, the National Science Foundation encourages research communities to respond to challenges and opportunities in the changing landscape of jobs and work. We are looking to support convergent research within the domain of work to:

* to understand and advance the human-technology partnership;

* to promote new technologies to augment human performance;

* to illuminate the emerging socio-technological landscape and understand the risks and benefits of new technologies; and

* to foster lifelong and pervasive learning with technology

5.

The focus on Work:

- For the purposes of the FW-HTF: Core Research solicitation, work is defined as mental or physical activity to achieve tangible benefit such as income, profit, or community welfare.
- The “future of work at the human-technology frontier” is a conceptualization of work in the future that will be enabled or improved by the synergistic integration of advances in intelligent technology with human skill.
- To reach this goal, research is sought that is anchored in work.

6.

The FW-HTF Program

Projects are welcome that advance a convergent research approach, integrating - and meaningfully relating - future work, future technology, and future workers in a cohesive integrated effort, in which all three elements can be recognized, but none can be isolated from the others.

* This interrelationship can be visualized using a Venn diagram comprising three interlocking rings.

* The upper ring represents future technology: the engineering and computer science technologies that will develop the human-technology partnership in future workspaces, including offices, classrooms, warehouses, farms, & factories.

* The ring on the lower right represents future workers: considering their interests and well-being as individuals or in teams, including education and training.

* The ring on the lower left represents future work within a societal, economic, professional, occupational, industrial, or national context.

* The FW-HTF program occupies the intersection of these three elements

* Projects responsive to the 2019 FW-HTF solicitation may be anchored with any one of the three areas as a primary component. Project leadership and personnel should reflect the intellectual priorities in all three areas.

7.

Objectives:

The specific objectives of this program are ...

- To facilitate convergent research among engineering, computer science, learning sciences, research on education and workforce training, and social, behavioral, and economic sciences;
- To encourage the development of a research community dedicated to designing intelligent technologies and work organization and modes;
- To promote deeper basic understanding of the interdependent human-technology partnership to advance societal needs; and
- To understand, anticipate, and explore mitigation of potential risks arising from future work at the human-technology frontier.

8.

Proposal Requirements:

Proposals that are responsive to the 2019 solicitation:

- MUST address a well-defined form of work or workplace domain, with the purpose of creating new or improved partnerships of technology and human workers;
- They MUST focus on advancing a fundamental understanding of future work, and potential improvements to work, workplaces, workforce preparation, or work outcomes for workers and society;
- They MUST propose convergent research that addresses technological as well as human and societal dimensions; and
- They MUST incorporate a conceptualization of future work that is embedded in a social and economic context.

* Please note that if your proposal is suitable for submission to another NSF program, it is not considered a FW-HTF proposal, and instead should be submitted to that other program.

9.

Important Revisions for the FY 2019 Competition:

The FY2019 program solicitation has been revised from 2018. Prospective PIs should read the new solicitation carefully. Among the changes are the following:

- Project Categories now include Planning Grants and two sizes of Research Grants;
- Proposers no longer submit to a designation of Theme 1 or Theme 2;
- Solicitation Specific Review Criteria have been removed;
- The Letter of Intent requirement has been removed;
- The proposal deadline has been revised.
- **It is important to highlight that in addition to the sections required by the PAPPG, the Project Description must also include sections labeled as “Work Context,” “Integrative Research,” and “Methods, Measures, and Metrics”.** More on this later;

10.

The Proposal Submission Deadline is March 6, 2019.

Proposals must be submitted by 5 PM local time on March 6, 2019.

11.

Eligibility Requirements

- PIs must hold an appointment at the US-based campus or office of an eligible Institution of Higher Education or non-profit organization.
- There are no restrictions beyond those outlined in the PAPPG on who may serve as Co-PI, Senior Personnel or Consultant.
- An individual may appear as PI, Co-PI, Senior Personnel, Other Personnel, or Consultant on **only one** proposal submitted in response to the FY 2019 FW-HTF solicitation.
- ***This eligibility constraint will be strictly enforced!***

12.

There are 3 categories of FW-HTF proposals:

Proposals for **FW-HTF Research Grants** are invited in two sizes.

- **Medium** sized Research projects have budget up to \$1,500,000 for up to 3 years.
- **Large** sized Research projects have budget of \$1,500,001 - \$3,000,000 for up to 4 years.

Proposals for **FW-HTF Planning Grants** are also invited.

- **Planning Grants** have budget up to \$150,000 for a period of 1 year.

Proposals should clearly justify the chosen category on the basis of project scope, required team size, and projected project outcomes

13.

Planning Grants

Planning Grant awards support a range of **planning activities** to stimulate research capacity and foster a convergent research team that can...

- Integrate multiple disciplinary perspectives;
- Build collaborations with relevant stakeholders; and
- Hone research gaps, questions, and hypotheses.

Activities within scope include, but are not limited to, travel, multidisciplinary workshops, stakeholder meetings, data collection, preliminary experiments, and pilots.

At the conclusion of the Planning Grant, researchers should be prepared to pursue a well-defined research agenda responsive to FW-HTF program vision

14.

Additional Sections Required

In addition to the standard required sections described in the Proposal & Award Policies & Procedures Guide, or PAPPG, the Project Description **MUST** include the following separate sections, clearly labeled with these specified headings:

- **Work Context – This** section will clearly identify and define the work domain, workers, and workplaces, and the scope and scale of outcomes and benefits envisioned;
- **Integrative Research – This** section will describe how knowledge, techniques, and expertise from multiple fields and sectors will create new and expanded frameworks for addressing research goals;
- **Methods, Measures, and Metrics – This** section will describe how progress and outcomes of the project will be assessed.

15.

Supplemental Documents Required

In addition to the Supplemental Documents described by the PAPPG, FW-HTF proposals **MUST** include:

- A **Management and Coordination Plan** - describing specific steps the project team plans to take to achieve the goal of convergent research, in which knowledge, techniques, and expertise from multiple fields and sectors create new and expanded frameworks for addressing research goals;

It is required that FW-HTF **Research Proposals** also include

- A **List of Project Personnel and Partner Institutions** - providing current, accurate information for all personnel and institutions involved in the project.

It is **not** required to provide a list of Project Personnel and Partner Institutions for FW-HTF **Planning Grants**.

16.

- Thank you for your interest in exploring the Future of Work at the Human-Technology Frontier: Core Research.
- We look forward to receiving your submissions by March 6th.
- If questions remain, please contact a cognizant program officer, as listed in solicitation NSF 19-541...

17.

... and on the final slide of this presentation.