CCRI Webinar Script
November 27, 2018

Slide 1 Title slide

Welcome to this Webinar about the CISE Community Research Infrastructure (CCRI) program for Fiscal Year 2019.

My name is Ken Calvert and I am the Division Director for the Division of Computer and Network Systems (CNS) in the Directorate for Computer and Information Science and Engineering (CISE) at the National Science Foundation.

Slide 2 Welcome

With me are:

- Jeremy Epstein, Deputy Division Director of CNS
- Harriet Taylor, Program Director, CNS

This year we have done a significant revision of the CISE Research Infrastructure (CRI) program to create the CISE Community Research Infrastructure Program (CCRI).

The solicitation is NSF 19-512

During this webinar, we will share details about the CCRI program to help you in developing proposals to this exciting new opportunity.

I hope that you will work together with your colleagues to develop proposals for exciting infrastructures that will enable and enhance CISE research communities and provide continued support to these communities as we move CISE research frontiers forward.

Slide 3 The CCRI program

The field of Computer and Information Science is a rapidly evolving discipline driven by technology innovation, research, and discovery. It is essential that we have quality testbeds, datasets, and other infrastructure for CISE researchers to develop, test, and validate their research models and systems.

CISE infrastructure needs are unique and do not always fit the requirements of other NSF infrastructure programs. Thus CISE has created an infrastructure program, CCRI, tailored to the needs of CISE research communities. The CCRI program is funded by CISE and offers CISE researchers opportunities in addition to the many other infrastructure programs that are NSF-wide.

At the same time, many models for research infrastructure have evolved beyond the institution-centric model. Many institutions are unable to support individual labs and resources or to upgrade departmental infrastructure to meet current CISE research needs.

NSF and CISE also cannot meet the individual needs of CISE research groups.

Thus, the CCRI program was created to develop infrastructure that can enable a broad and diverse group of CISE researchers pursing a synergistic research focus.

CCRI seeks projects to build infrastructures that are ensembles of critical elements:

- Fundamental infrastructure
- Related tools and resources
- User services
- Community outreach

CCRI seeks infrastructure that enables research not currently possible with existing infrastructure to move the frontiers of CISE research forward. Through CCRI, CISE hopes to energize teams of CISE researchers to work together to develop the next generation of innovative infrastructures that will become fundamental to CISE research.

Slide 4 Focused research agenda

CCRI projects are driven by a focused, compelling CISE-centric research agenda. The purpose of CCRI infrastructure must be to enable and support a community of CISE researchers with a focused, synergistic research agenda.

CCRI infrastructure projects must be led by CISE researchers. A viable CCRI project involves a team of CISE research researchers with the research expertise and capacity to develop all aspects of the CCRI project.

It is imperative that the associated research community is actively involved in the CCRI project. This can involve input into the design, development, and testing of the resource as well as the management of the resource. The ultimate goal should be sustainability of the resource through the active participation and direction of the research community.

CCRI reviewers will consider the research focus and CISE-centric nature of the project as a major component of the quality of a CCRI proposal. It will be essential that CCRI proposals articulate the research focus and vision and include samples of innovative research projects that such an infrastructure might enable.

Slide 5 Differences in CCRI and the old CRI program

There are several significant differences in the CCRI program and the old CRI program.

1. CCRI supports **CISE Community Infrastructure**. It does not support Institutional Infrastructure or the infrastructure needs of a single investigator or closed group of investigators. Investigators should include modest requests for equipment within their CISE core research proposals. Other institutional infrastructure needs beyond those that are the institutional responsibility will need to look to NSF programs such as the Major Research Instrumentation (MRI) program or other programs listed in the CCRI solicitation.

2. CCRI includes the **Grand Ensemble** award type for more ambitious projects. The funding is for up to $5 Million for 5 years. The number of **Grand** awards each year will be limited. Significant effort will be needed to develop and implement an exemplary **Grand** project.

3. The award durations and maximum amounts have been increased.

4. CCRI includes developing accompanying tools and user services as well as providing for significant community engagement and community outreach.

5. There is a single track, **Enhance/Sustain**, for projects with prior CRI Community New or Enhancement Infrastructure funding.

6. CCRI requires a **Letter of Intent** rather than a Preliminary Proposal to be eligible to submit a Full CCRI proposal.

Slide 6 (CCRI submission guidelines)

Letters of intent
Letters of Intent are required for the CCRI program.

Letters of Intent are due January 8, 2019

Only the lead institution of a collaborative project submits a LoI. The Letter of Intent will contain information about the other collaborating partners.

The PI on the LoI must be the PI on the corresponding Full Proposal. Other personnel can change.

Look at the instructions in the CCRI solicitation for preparing a Letter of Intent.

There will be no feedback on Letters of Intent. A message acknowledging receipt of the LOI will be sent to the PI.

Full proposals
Full CCRI proposals are due February 19, 2019

Full proposals should follow the guidelines in the CCRI solicitation (NSF 19-xxx) and the NSF Proposal & Award Policies & Procedures Guide (PAPPG)

An individual may participate in only 1 CCRI proposal
This includes serving as PI, Co-PI, Senior Personnel on a proposal or any part of a collaborative proposal.

Proposals from for-profit industry are not eligible to be submitted to CCRI. This includes submissions as non-lead collaborative pieces.

In past years this has caused several collaborative proposals to be totally removed from consideration. Submissions from for-profit industry will be withdrawn or returned without review as well as the entire collaborative group.

Slide 7 CCRI proposal tracks

The CCRI program has two tracks for proposals:

- New community infrastructure track (New)
- Enhance/sustain community infrastructure track (ENS)

The **New** track is for proposals for new CISE community research infrastructures. This includes proposals for totally new resources as well as proposals for developing resources that might have been institutional or for a closed group of researchers into CISE community research infrastructures.

There **New** track has three award categories:

- Grand Ensemble (Grand)
- Medium Ensemble (Medium)
- Planning (Planning)

The **ENS** track is for proposals to enhance and sustain existing CISE community research infrastructures.

The **ENS** track is for any existing CISE community infrastructures regardless of the source of past funding, even if that funding came from outside NSF such as a different government agency or university funding.

Infrastructures that have received past **CRI Community Infrastructure New or Enhancement** awards must submit proposals to the ENS track.

Infrastructures that have received **CRI Sustain** awards are not eligible for funding from the CCRI program.

The tracks and different categories will be discussed in more detail on the following slides.

Slide 8 Grand Ensemble category

Grand projects develop significant testbeds and platforms with an integrated set of tools and user services for CISE research communities.

Grand projects

- Are five year awards
- Have a maximum budget of 5 million dollars (total of all collaborative parts)
- Require a successful site visit during year 3 for funding for the last two years

Grand projects promote bold, emerging research directions and agendas.

Grand projects usually involve a large team of investigators with synergistic expertise to develop, maintain, enhance, and sustain the infrastructure.

Grand projects must have a **Community Outreach Director** and include a concrete set of activities to develop a broad and diverse user community. A significant portion of the overall budget (around 25%) must be devoted to community outreach and engagement.

Grand projects must include an **Advisory Board** drawn from the user community to provide input into the design, development, management and ongoing vision for the infrastructure.

Grand projects will require significant planning and preliminary work. This could include community engagement for input into the structure of the resource as well as to assess the community need and commitment to use and support such a resource. It could also include development of prototypes or some essential components for testing.

Grand proposals will need to demonstrate that the infrastructure proposed is realistic and that it is based on a solid set of preliminary activities as well as significant discussions between the various team members and the CISE research community that is to be involved.

PIs will need to decide whether or not their team is far along enough in the process to develop plans for a full five-year **Grand** project. Some projects would benefit from a year-long **Planning** award to engage the research community and to develop a mature relationship between the project team prior to submitting a full **Grand** proposal.

Slide 9 Medium Ensemble category

Medium projects develop new CISE community research infrastructures and user services that are a bit less ambitious and developed than **Grand** projects.

Medium projects

- are a maximum of 3 years long
- have a maximum budget of 1.5 million dollars.

Medium project should also involve the community in the design and development of the infrastructure and include more modest community outreach activities.

Medium projects should be eligible to compete for CCRI **ENS** awards at the end of the three-year years of **Medium** CCRI funding.

Slide 10 Planning category

Planning projects revolve around a set of activities to plan for a New **Grand** or **Medium** CCRI proposal.

Planning awards

- Are for one to one and a half years in duration
- Have a maximum award budget of $100,000

Planning awards must include a compelling research vision and underlying research community that will benefit from the development of the infrastructure

Planning awards typically involve significant community engagement to determine community needs and priorities as well as to promote community involvement in the infrastructure project.

Planning proposals should provide a clear schedule of the planning activities that are being proposed and show how the activities will contribute to the design of a new infrastructure and the corresponding CCRI New proposal.

A small portion of a **Planning** award could be used for prototype development and testing.

PIs and faculty who are actively involved with the research community and who can lead community activities need to be at the center of the planning activities. These responsibilities are not generally most successful when delegated to graduate students or other non-research project personnel.

Slide 11 Enhance/sustain type

Enhance/sustain awards support significant enhancement of existing CISE community research infrastructure, outreach to broaden and diversity the associated CISE research community, and implementation of a long-term sustainability plan.

ENS awards

- Are for a maximum of 3 years
- Have a maximum budget of 2 million dollars

ENS awards include not only enhancement of the infrastructure itself but also development and enhancement of associated tools and user services.

ENS projects should include significant community outreach to develop a broad and diverse user community. A significant portion of the **ENS** overall budget should be devoted to community outreach.

ENS proposals must contain evidence that the initial infrastructure was successful. Proposals should document community use of the resource and community involvement in the resource development and outreach activities.

ENS proposals must also document community support for the proposed enhancements and demonstrate how the enhancements meet community needs.

ENS proposals must include a realistic plan for achieving sustainability for ongoing operations of the infrastructure at the end of the CCRI funding.

Existing CISE community infrastructure, regardless of the source of initial funding, must submit to this CCRI track.

Slide 12 Characteristics of successful CCRI projects

There are several major elements that should be part of successful CCRI projects. These include:

1. The projects feature a compelling, focused CISE-centric research agenda.

2. The projects are led by CISE disciplinary researchers and involve significant participation by CISE researchers. The projects incorporate teams of researchers with synergistic expertise needed to develop the infrastructure project fully.

3. The projects include plans for a well-designed suite of tools and resources to accompany the infrastructure as well as plans for providing sound user services.

4. The projects give the research community a voice in the development, management, and future directions of the infrastructure. Proposals demonstrate community support

for the infrastructure and describe how community engagement has shaped the planned infrastructure and proposal.

5. The projects have credible and significant plans for community outreach activities and have identified appropriate individuals to lead community engagement and outreach efforts.

6. The project has the potential to enable and support CISE research that is not possible with infrastructure that is currently available to most of the associated CISE research community. There is potential for transformative research that will extend CISE research frontiers.

Slide 13 Projects involving data or datasets

Most scientific disciplines rely on validated data sets to test research models.

CCRI supports creation and curation of data sets needed to support CISE research including benchmark data sets for CISE systems research.

CCRI projects may involve creation of data sets and other data resources unique to CISE research goals.

There are a number of NSF-wide programs, for example, Big Data Spokes, that support development of discipline-specific data and resources to support applications involving Data Science and Big Data broadly.

Talk with the CCRI team representative in the Core Area related to your project about potential data collection activities and the fit with the CCRI program.

Slide 14 Who should be PI and Co-PIs

Individuals who are serving as the PI or as a co-PI on a CCRI project should be people who have direct roles in the CCRI project.

They should be CISE researchers who are involved with the community served by the infrastructure and they should provide leadership to the community.

They should have research expertise related to the proposed infrastructure and the research agenda that the infrastructure will support.

Individuals who do not have a role in the work of the CCRI project, particularly researchers who will simply use the infrastructure once it is developed, should not be a PI or Co-PI

Department chairs, deans, directors of computer centers, or others who are in primarily administrative positions in the university are not typically PIs or Co-PIs on CCRI projects.

CCRI proposals should detail the roles and responsibilities of each person listed as PI, Co-PI, and Senior Personnel in the CCRI project

Slide 15 Letter of Intent preparation

An individual can be listed on only one Letter of Intent (LoI)

Submit the Letter of Intent to the CISE division most closely related to the research focus of the project (CCF, CNS, or IIS).

- If you are unsure of which division to submit to or if the project involves research related to more than one of the divisions, pick one the one that you feel is the "best" home for the proposal.
- CISE program directors will use this information to advise the groupings for panels. The program directors will ultimately group related projects together to provide for cohesive panels and expert review.

The CCRI solicitation has very specific guidelines for LoI preparation. The required sections are shown on this slide and detailed in the solicitation.

Notice! – CCRI does not accept submissions from for-profit industry.
Including a linked collaborative proposal from for-profit industry will cause the entire collaborative project to be returned without review.

Slide 16 Full Proposal preparation

There are specific guidelines for each CCRI proposal type in the solicitation. Follow them carefully.

CCRI proposals must contain the following Supplementary Documents:

1. Project roles and responsibilities table

2. Year by year community activities and outreach table

3. Data Management Plan

4. Post doc mentoring plan (if Post docs are involved in project)

5. Letters documenting collaborative arrangements of significance.
These letters should describe the specific nature of the collaboration (rather than the

normal set language for Letters of Collaboration).

6. Letters of collaboration are not needed from organizations submitting linked collaborative proposals. The 15-page Project Description should clearly describe the role of each Collaborating partner submitting a linked Collaborative Proposal.

Failure to include any of the required Supplementary Documents in the proposal will result in having the proposal Returned without Review.

Letters of support are not allowed.

Inclusion of letters of letters of support or other disallowed supplementary documents will cause the proposal to be Returned without Review.

Slide 17 Budget preparation

Funding for project personnel should reflect the nature of the project and the effort needed to develop the infrastructure.

Typically, CCRI provides modest (one summer month) for the PI and possibly other major faculty contributors to the project.

CCRI can fund graduate students and other project support personnel, such as personnel need for operations or technical support.

CCRI will provide a maximum of $250,000 per year for operational expenses.

Projects need to balance requests for faculty salary and graduate student support.

CCRI budgets should contain funds for the PI and Community Outreach Director to attend the annual CCRI PI meeting. PI meeting participation is not required for Planning Award PIs. If Planning Award PIs wish to attend the PI meeting, then the travel funds must be included in the project budget.

CCRI proposals should have reasonable estimates of costs for any equipment that is requested. PIs are asked to verify equipment costs through more formal cost quotes at the time of funding.

Budgets should include the costs for outreach directors. This might include:

- Support for the Outreach Director
- Participant Support for workshops and outreach meetings
- Funds for the Outreach Director and other essential project personnel to travel for outreach purposes.
- Other costs that are essential for a quality outreach component.

Project Budget Justifications should align with NSF budget categories and be detailed using budget categories and the order found on standard NSF budgets. Be clear about the nature of expenses and how the expense figure was derived.

Slide 18 Items CCRI will not fund

The CCRI Program does not fund the following items:

- Institutional infrastructure
- Building or structural renovations to accommodate the infrastructure
- Infrastructure for a single investigator or a closed group of researchers
- Industry collaborators
- Projects to develop general purpose tools of use to many researchers
- Infrastructure focused on educational benefits
- The research that the CCRI infrastructure enables
- Travel to present research results
- Projects that have a non-CISE-centric research focus
- Projects that do not include CISE researchers in leadership positions and that do not involve CISE researchers in integral ways

Slide 19 CCRI programmatic review criteria

As with all proposals submitted to the NSF, the CCRI proposals will be reviewed based on Intellectual Merit and Broader Impacts.

The CCRI solicitation contains additional CCRI programmatic review criteria for each project type. Be sure that your project clearly addresses the criteria for the type of proposal you are submitting.

Some criteria elements are common to all types. These include:

- CISE-centric research focus
- Research vision
- Community need and involvement
- CISE project team with relevant expertise
- Community outreach plans
- Project management plan and timeline

Make sure that these elements are clear and compelling in your proposal.

Slide 20 Some other considerations

A CCRI Community Virtual Organization is under development.

The CCRI CVO will provide leadership within the CCRI community and provide critical links to CCRI resources to the research community

- All CCRI projects will be required to participate in the CCRI-CVO and provide data about the community infrastructure for prospective users.

Grand and **ENS** type projects must include plans for a project Advisory Board.

- Members of the Advisory Board must be drawn from the broader research community targeted by the project infrastructure.
- Advisory Board members cannot be from the organizations receiving the CCRI award and cannot be collaborators of the PIs.

Slide 21 Concluding Remarks

CCRI resources will support and enable existing and emerging CISE research communities and lead CISE discoveries.

Talk with your CCRI team member if you need additional information:

- CNS – Harriet Taylor and Mimi McClure
- CCF – Sankar Basu
- IIS – Wendy Nilsen

Slide 22 Questions from the audience

The slides that were presented and the talking script of the webinar will be posted later this week on the **CISE website**.

https://www.nsf.gov/dir/index.jsp?org=CISE

We will now respond to questions from the viewing audience.