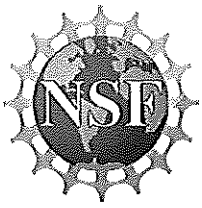

Introduction to Webinar on Upcoming ACI Solicitations March 3, 2016

Amy Friedlander
Deputy Division Director
Division of Advanced Cyberinfrastructure/NSF

Good morning. My name is Amy Friedlander, and I am delighted to welcome you to our webinar on ACI and upcoming solicitations that may be of interest to you. We will post the slides and the audio file on the Event Page so that if you miss any of the presentations or wish to refer back, the information will be available for you. The URL will be provided at the end of this presentation.

Goals for this presentation

- Provide context for the programs
- Call attention to several changes in NSF-wide policies and procedures
- Point to resources that can help you prepare your proposals and understand the merit review process

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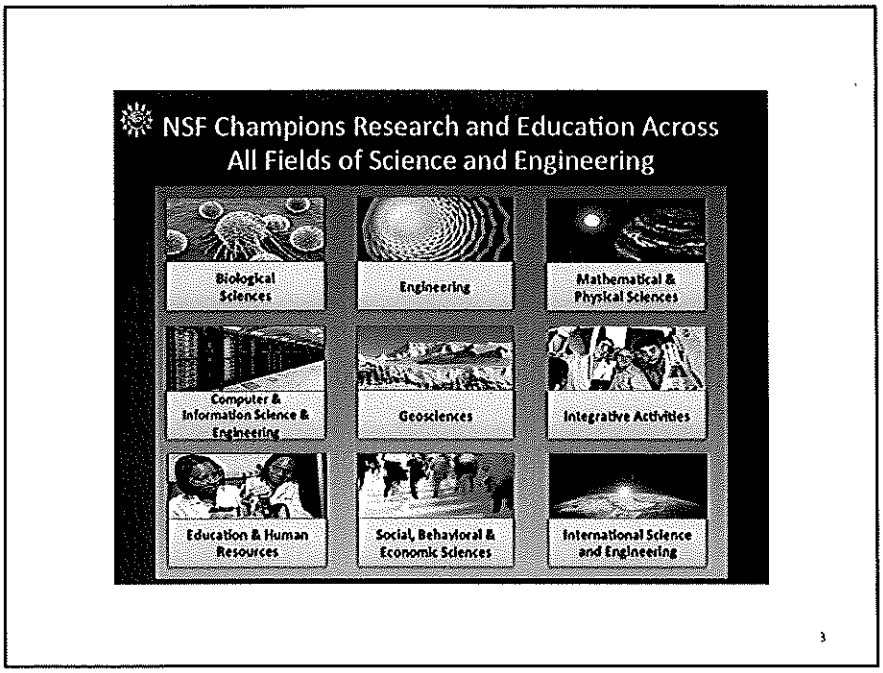
My colleagues in the programs are here to discuss specific opportunities in the areas we support. However, before we get to their presentations, the goals of my brief presentation are to: (1) tell you a little about NSF and ACI and to provide context for our programs; (2) call attention to several changes in NSF-wide policies and procedures that will affect the way you develop and submit your proposals; and (3) point you to some resources that can help you prepare your proposals.

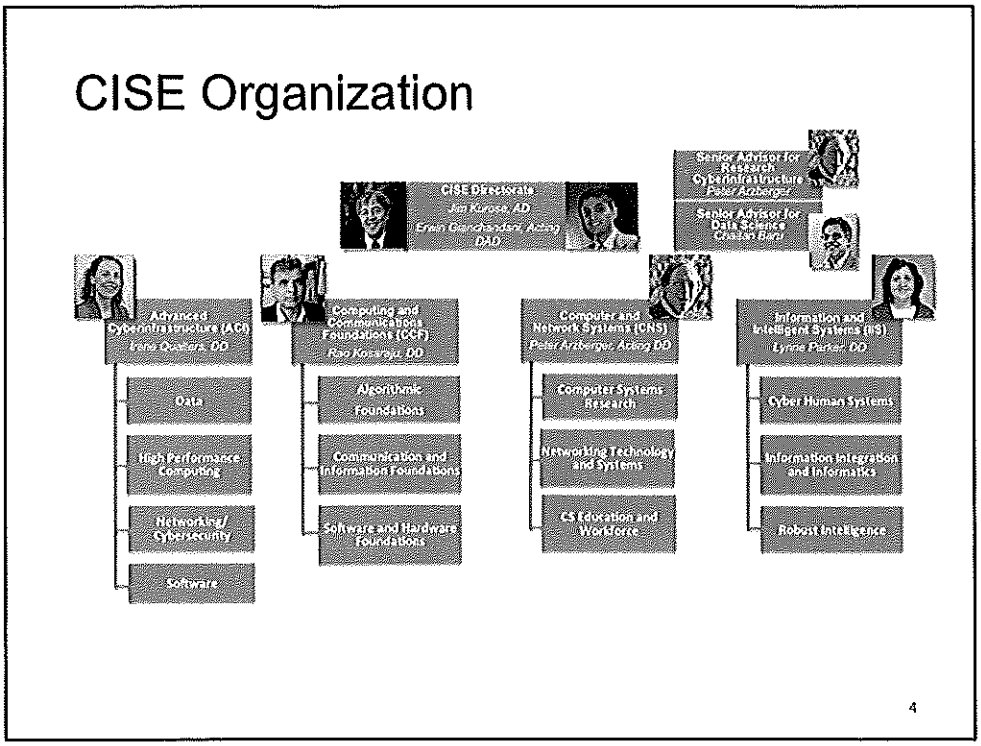


As many of you may know, NSF has a broad mission to advance basic research in science, technology, and engineering and the education. The foundation is organized into seven directorates and the Office of International Science and Engineering and the Office of Integrative Activities. The directorates correspond to the broad disciplinary areas of science, engineering, and education: Biological Sciences, Engineering, Mathematics and Physical Sciences, Computer and Information Science and Engineering, Geosciences, Education and Human Resources; Social, Behavioral, and Economic Sciences.

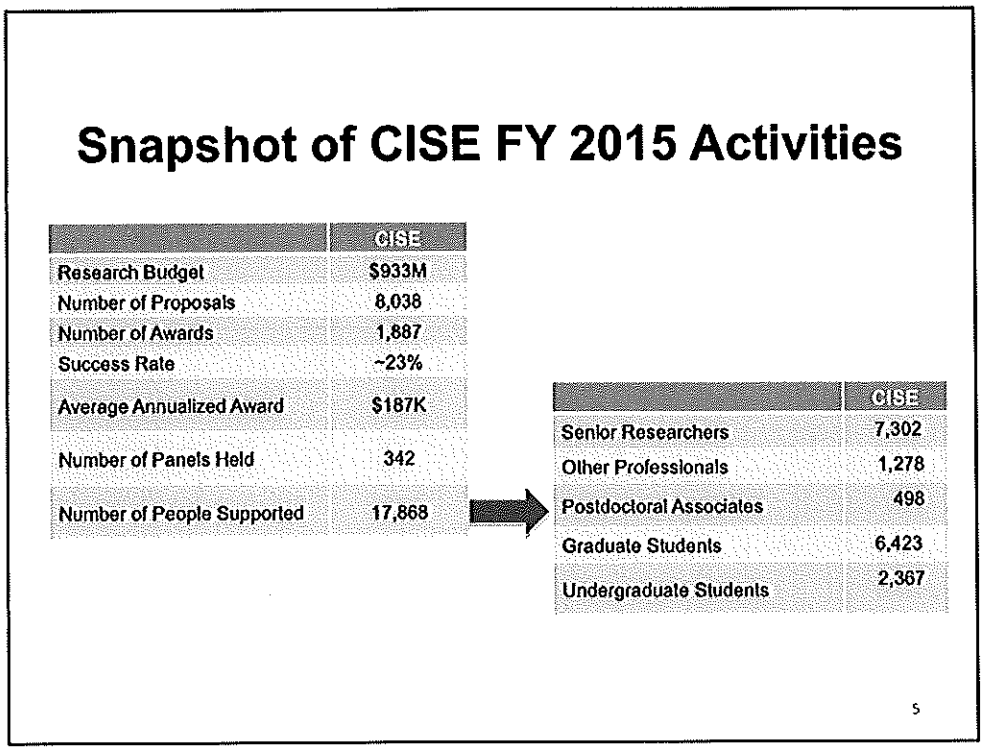
CREDITS:
Top row (left to right):
Cancer cell and lymphocytes;
Credit: Thinkstock

Stampede is a world-class supercomputer with comprehensive simulation and data analysis capabilities
Credit: TACC

Two students work on a research project as part of Rutgers' I^3 effort. Rutgers' goal is to develop a model that will recruit, retain, mentor and educate graduate students to become leading scientists in the nation
Credit: Nick Romanenko

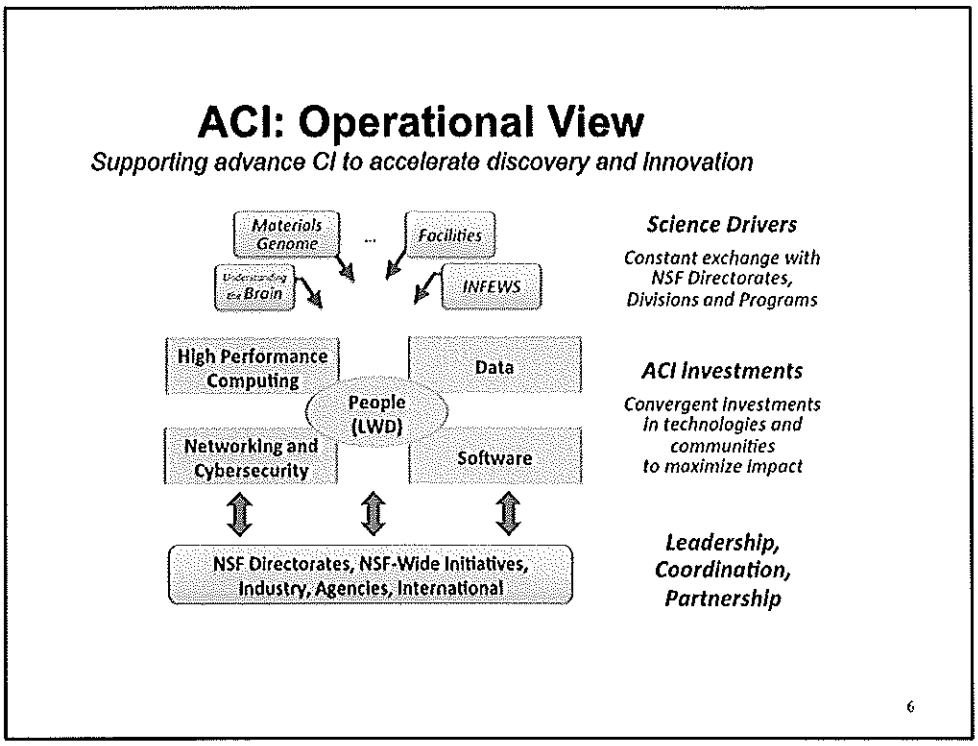


The Division of Advanced Cyberinfrastructure is located with the CISE directorate, and is one of four divisions: ACI, Computing and Communications Foundations, Computer and Network Systems, and Information and Intelligent Systems. Each of these divisions is further sub-divided into topical clusters or areas as you can see in this organization chart.



This slide presents a little more detail on CISE, based on 2015 data. We made just under 1900 awards for a total of $933M. Most awards are made through competitive merit review, meaning that the directorate organized 342 panels. A total of 17,868 individuals are supported; the largest categories are senior researchers and graduate students. However, we are also pleased about the approximately 2,300 undergraduate students who are also supported.

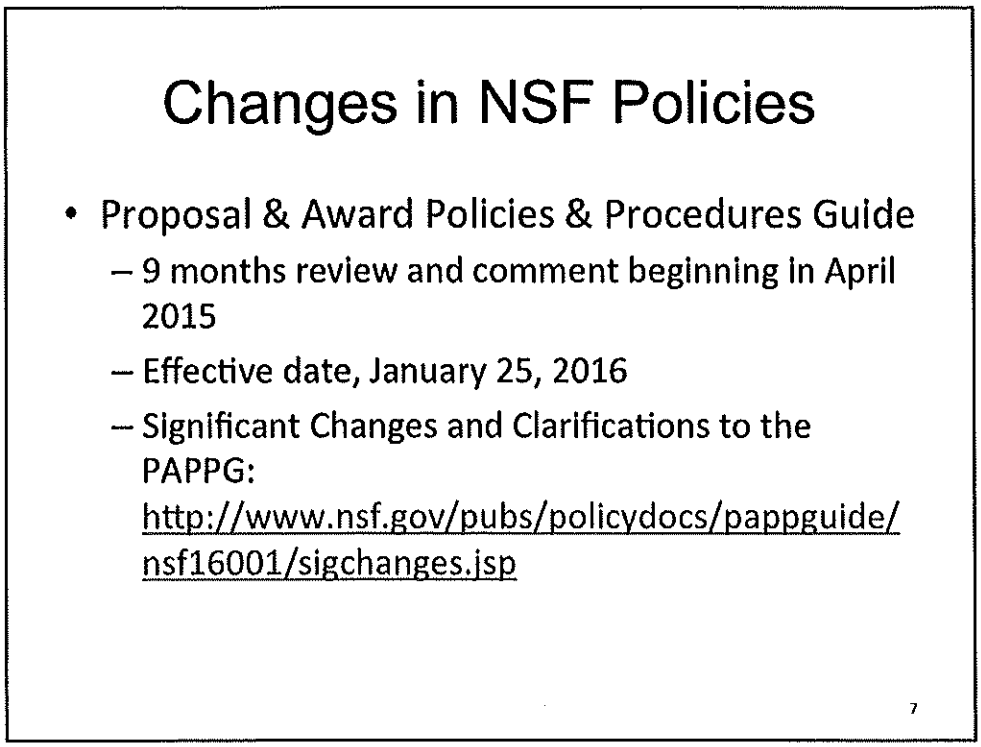
Let's look a little more closely at ACI.



ACI is grouped into five thematic areas or clusters: High Performance Computing, Networking and Cybersecurity; Software; Data; and Learning and Workforce Development.

ACI both provisions the advanced research cyberinfrastructure on campuses and undertakes use-inspired research on the cyberinfrastructure itself. This means that we interact with all of the NSF directorates as well as other agencies, industry, and international partners and make investments that seek to build communities and maximize the impact of other investments as well as our own. In addition to the importance of supporting advanced research, what sets ACI apart from other NSF programs is the focus on integrated activities, interdisciplinary research and applications; and attention to sustainability and community development. This means we invest in the people who build, operate, and use the cyberinfrastructure together with high performance computing, advanced networking and cybersecurity, data, and software.

My colleagues will talk about their programs, so let me move on to some highlights of changes to the PAPPG.



Every year, NSF updates the Proposal and Award Policies and Procedures Guide through a public notification, comment, and review process published in the Federal Register. This process began in April, 2015 and was concluded in October. The effective date for these changes is January 25, 2016. For a summary of them, you should check the page entitled "Significant Changes and Clarifications to the PAPPG"; I have provided the URL.

Some of the notable changes

- 5 p.m. submitter's local time is standard for all submissions, including proposals submitted in response to solicitations.
- If the word "must" (rather than "should") has been used, please note that this is a ***requirement***. Proposals that do not have required elements may be returned without review. This includes use of special characters, formatting, and organization of documents uploaded separately as well as collaboration plans, data management plans, and other elements required by solicitation or the Grant Proposal Guide.

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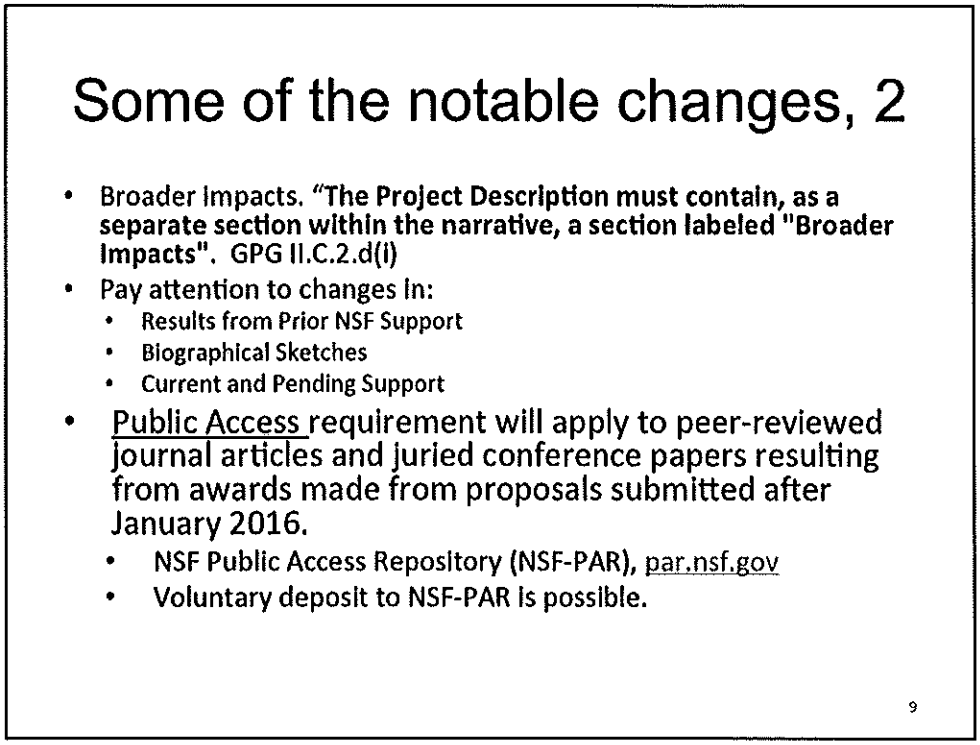
You (or your sponsored research office) should become familiar with all of these changes, which affect both the submission of your proposal as well as the eventual management of the award, if your proposal is successful. For now, let me just highlight a couple of the changes for you:

- 5 p.m. submitter's local time is standard for all submissions, including proposals submitted in response to solicitations.
- If the word "must" (rather than "should") has been used, please note that this is a ***requirement***. Proposals that do not have required elements may be returned without review. This



NSF employs two foundation-wide merit review criteria (in addition to any solicitation-specific criteria). These criteria are intellectual merit and broader impacts. Please pay attention to new requirements for broader impacts in your proposals: That is, "**The Project Description must contain, as a separate section within the narrative, a section labeled "Broader Impacts"**.

Also pay attention to changes and new formatting requirements for:

- Results from Prior NSF Support
- Biographical Sketches
- Current and Pending Support

Finally, a word about public access. NSF has had a data sharing policy for many years and a data management plan requirement since 2011. In March 2015, we released our public access plan (NSF 15-52), and the requirement has gone into effect for awards made for proposals submitted or due on or after January 25, 2016, the effective date of the PAPPG. Copies of journal articles and juried conference papers supported wholly or part from these awards must be deposited in the NSF Public Access Repository

NSF Public Access: Project Reporting

- Reduce burden on PIs by automatically ingesting publication information submitted through NSF-PAR into annual and final project reports
- Cumulative listing of all products
- Simplify reporting of products
- Automatic ingest will only happen for awards that must comply with the new Public Access policy
- NSF has worked with a small group of PIs to voluntarily deposit publications in NSF PAR to test the automatic ingest process

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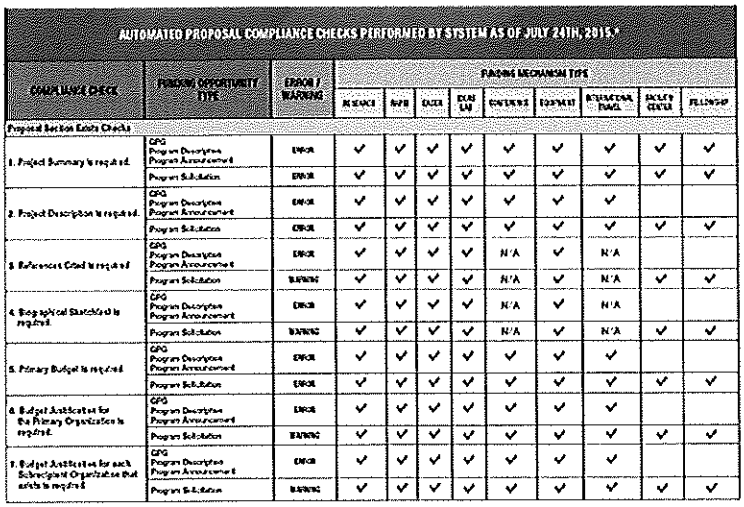
NSF-PAR has been up and running since December 2015, and over 100 individuals have voluntarily deposited papers, not including people who were part of the pilot. One of the goals of the system has been to minimize burden on the PI community by streamlining the way publications are reported. Data from the repository is automatically pre-populated in annual and final reports and the reports will provide a cumulative listing of all products.

Let me emphasize that the automatic pre-population of reports only applies to new awards that must comply with the public access requirement. Those of you who may have existing awards are not subject to the new requirement and will report the way you always have.

Automated Compliance Checking



AUTOMATED PROPOSAL COMPLIANCE CHECKS PERFORMED BY SYSTEM AS OF JULY 24TH, 2015.*

COMPLIANCE CHECK	FUNDING OPPORTUNITY TYPE	ERROR / WARNING	FUNDING MECHANISM TYPE								
			RESEARCH	RAPID	EAGER	IDEAS LAB	CONFERENCE	EQUIPMENT	INTERNATIONAL TRAVEL	FACILITY CENTER	FELLOWSHIP
Proposal Section Exists Checks											
1. Project Summary is required.	GPG Program Description Program Announcement	ERROR	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Program Solicitation	ERROR	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. Project Description is required.	GPG Program Description Program Announcement	ERROR	✓	✓	✓	✓	✓	✓	✓		
	Program Solicitation	ERROR	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. References Cited is required	GPG Program Description Program Announcement	ERROR	✓	✓	✓	✓	N/A	✓	N/A		
	Program Solicitation	WARNING	✓	✓	✓	✓	N/A	✓	N/A	✓	✓
4. Biographical Sketch(es) is required.	GPG Program Description Program Announcement	ERROR	✓	✓	✓	✓	N/A	✓	N/A		
	Program Solicitation	WARNING	✓	✓	✓	✓	N/A	✓	N/A	✓	✓
5. Primary Budget is required	GPG Program Description Program Announcement	ERROR	✓	✓	✓	✓	✓	✓	✓		
	Program Solicitation	ERROR	✓	✓	✓	✓	✓	✓	✓	✓	✓
6. Budget Justification for the Primary Organization is required.	GPG Program Description Program Announcement	ERROR	✓	✓	✓	✓	✓	✓	✓		
	Program Solicitation	WARNING	✓	✓	✓	✓	✓	✓	✓	✓	✓
7. Budget Justification for each Subrecipient Organization that exists is required	GPG Program Description Program Announcement	ERROR	✓	✓	✓	✓	✓	✓	✓		
	Program Solicitation	WARNING	✓	✓	✓	✓	✓	✓	✓	✓	✓

http://www.nsf.gov/bfa/dias/policy/autocheck/compliancechecks_july15.pdf

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Another change concerns automated compliance checking.

The list specifies which checks are run depending on type of submission (GPG, Program Description, Program Announcement, or Program Solicitation) and funding mechanism (Research, RAPID, EAGER, Ideas Lab, Conference, Equipment, International Travel, Facility/Center, or Fellowship). It also specifies whether the check triggers a "warning" or "error" message for non-compliant proposals.

Grants.gov does not perform any of these checks and may allow a proposal to be submitted only for it to be returned without review once it hits NSF.

Key Documents

- Proposal & Award Policies & Procedures Guide
  nsf.gov/publications/pub_summ.jsp?ods_key=papp
- Fiscal Year 2016 Budget Request
  nsf.gov/about/budget/fy2016/index.jsp
- NSF Strategic Plan for Fiscal Years 2014-2018
  nsf.gov/publications/pub_summ.jsp?ods_key=nsf14043
- NSB Report on Merit Review
  nsf.gov/nsb/publications/pub_summ.jsp?ods_key=nsb1333
- Public Access
  - Plan (NSF 15-52)
    www.nsf.gov/news/special_reports/public_access/index.jsp
  - Research.gov (www.research.gov), About Public Access
- ACI website, www.nsf.gov/div/index.jsp?div=ACI

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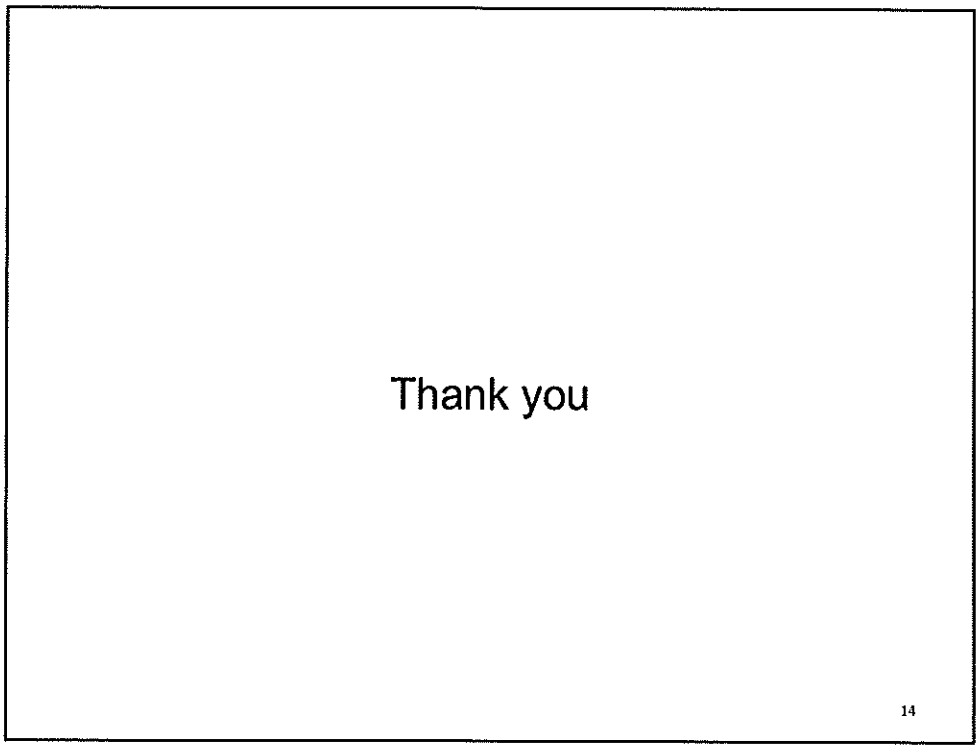
So I will stop here with a few pointers to some key documents: The PAPPG; the budget request; the strategic plan; the NSB report on merit review; some pointers to Public Access resources; and of course, the division website.

Finally, you can review this presentation at the Event page at this URL.



Thank you.

Credits

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- The inclusion of a logo does not express or imply the endorsement by NSF of the entities' products, services, or enterprises.

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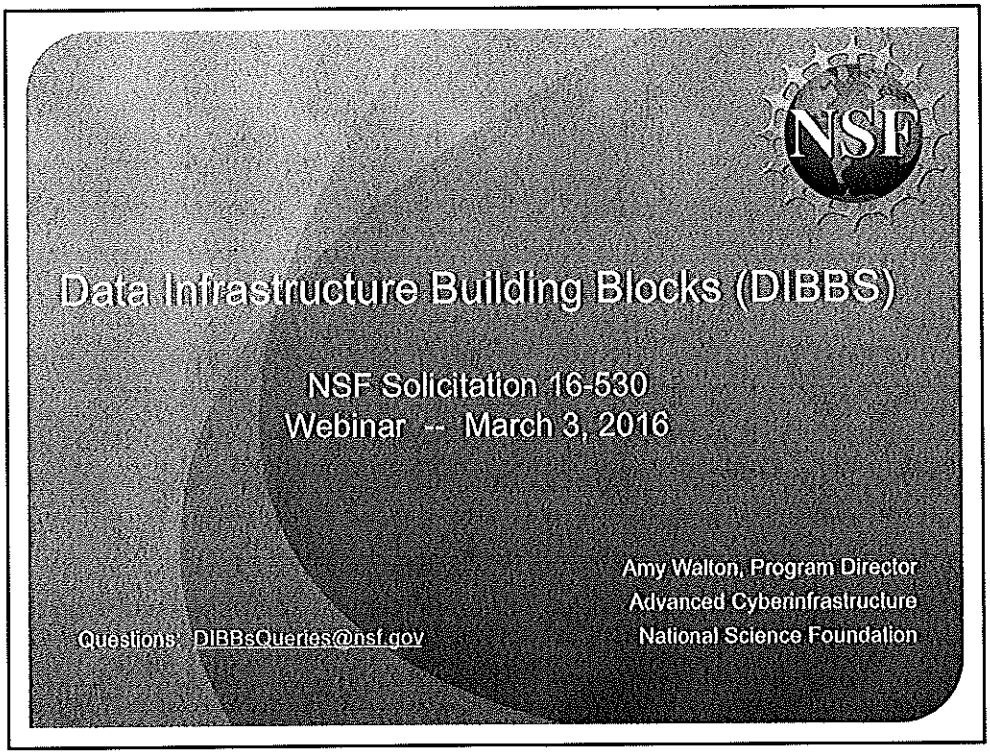
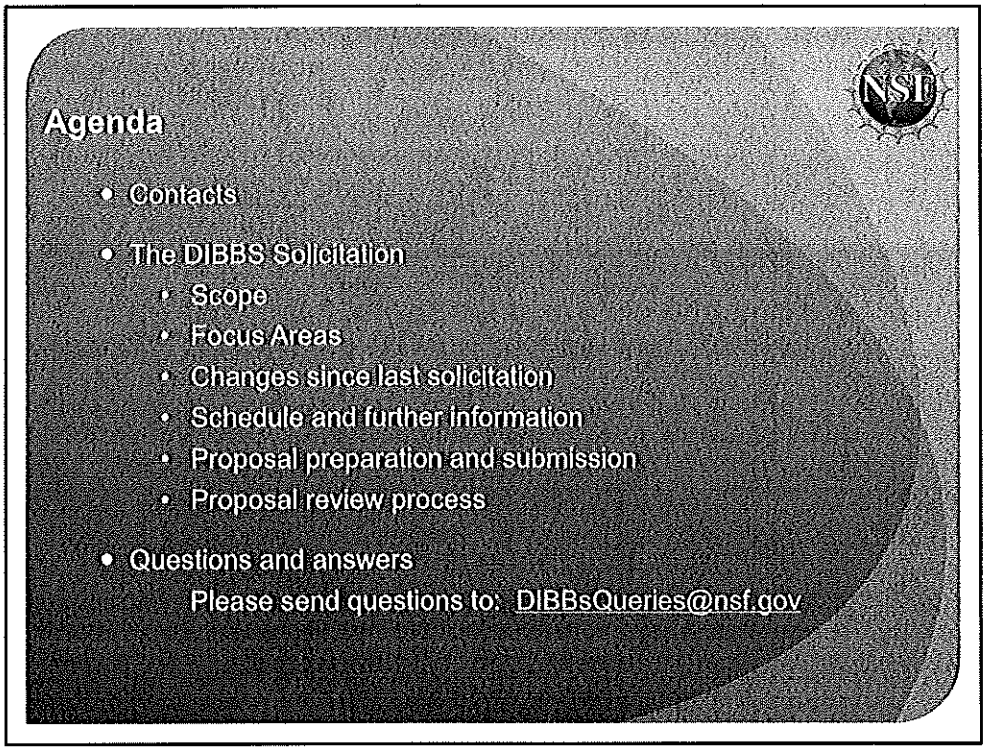
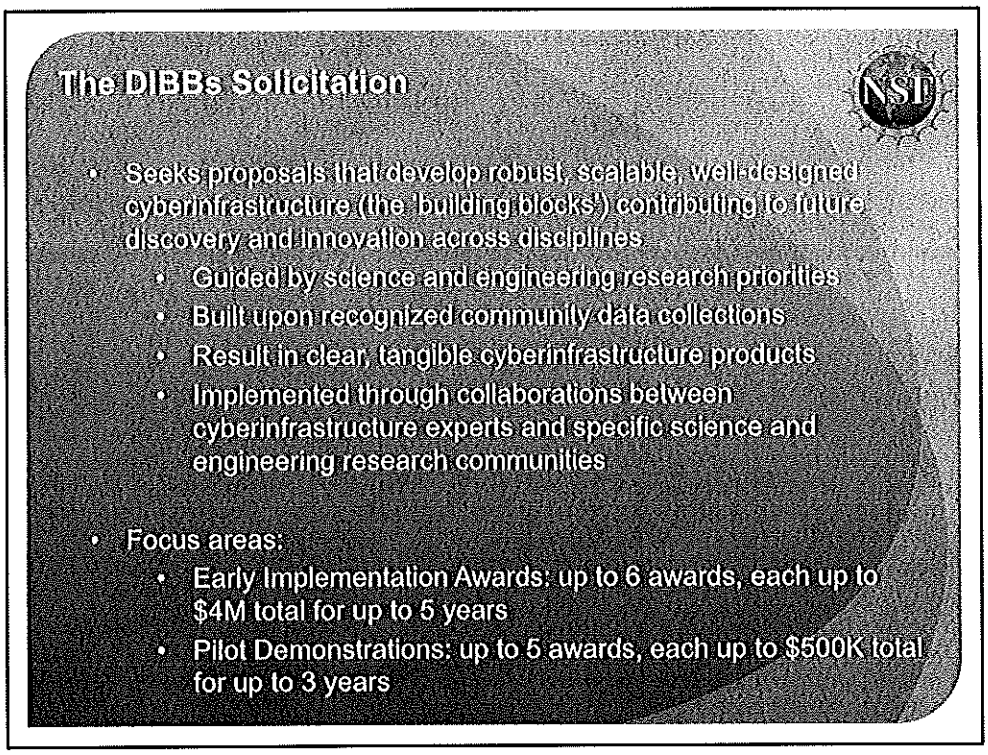


Good morning. I'm Amy Walton, one of the NSF Program Directors managing the Data Infrastructure Building Blocks (DIBBS) solicitation. Thank you for taking time to join us today. In this webcast, I'll provide a brief overview of the program and some of the most important things you need to know about submitting a proposal.



This is the agenda for today's presentation. The presentation starts with an overview of the NSF organizations involved in the development of this solicitation and the motivation for the DIBBs program. Next, some important aspects of this solicitation -- the types of awards to be made, submission requirements, and deadlines – are presented. Finally, I'll address further questions from the audience, with help from my colleagues.

Seven NSF Directorates, and the International organization within the Office of the Director, have participated in the development of this solicitation. The management team includes Program Directors from each of these organizations. The names of my colleagues, and their organizational affiliations, are shown on this slide; several of these Program Directors are here today to help answer any questions you might have.



This solicitation seeks proposals that explore innovative, use-inspired infrastructure options that contribute to future discovery and innovation across multiple disciplines. These infrastructure options are:

- Guided by science and engineering research priorities
- Built upon recognized community data collections
- Result in clear, tangible cyberinfrastructure products -- early demonstrations of new or expanded capabilities, evaluated by relevant communities.
- Implemented through collaborations between cyberinfrastructure experts and specific science and engineering research communities, to ensure continuing relevance

The resulting awards will be demonstrations of 'building block' capabilities, which may be replicated and combined to build a robust, interoperable, (inter)national data infrastructure. The focus areas in this solicitation are:

- Early Implementation Awards: up to 6 awards, each up to $1M total for up to 5 years
- Pilot Demonstrations: up to 6 awards, each up to $500K total for up to 3 years

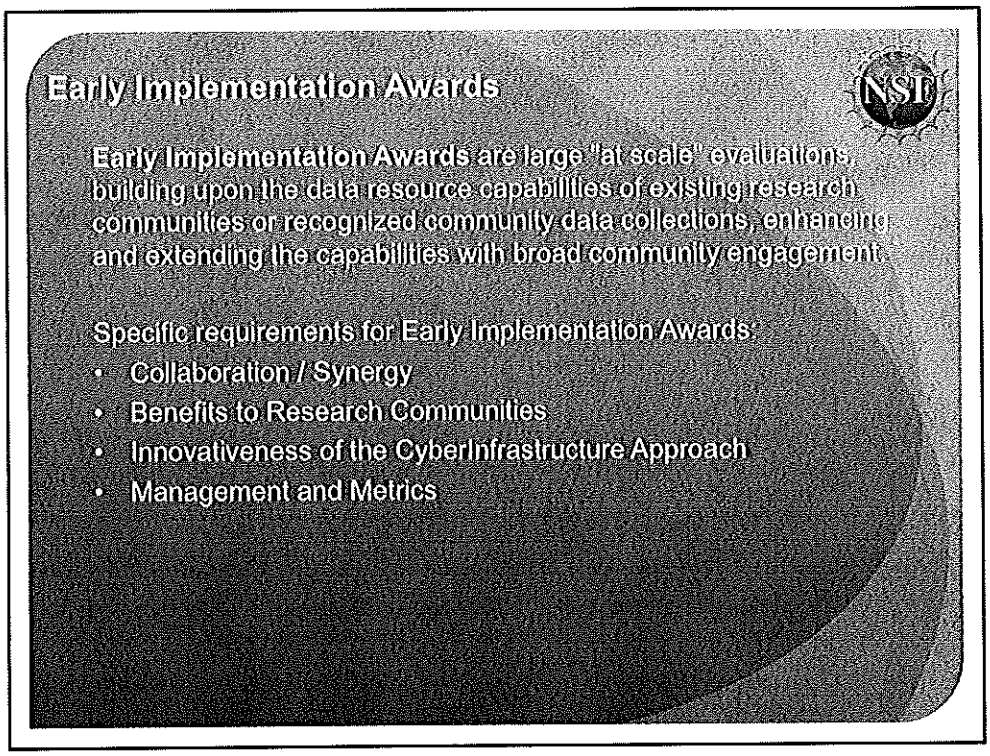
The program has incorporated lessons learned from the prior (2014) DIBBs solicitation. ***The current solicitation includes extensive involvement by NSF science, engineering, and education directorates in solicitation development and proposal evaluation***:

- Seven Directorates (BIO, CISE, EHR, ENG, GEO, MPS, SBE) and the Director's Office of International Science and Engineering (OISE) have participated in the development of this solicitation, and will participate in the proposal review and evaluation process.
- A Cognizant Program Officer from each organization is a member of the DIBBs solicitation management team.
- Each Directorate developed a statement of domain-specific priorities and data problems. The list is included in the Program Description section of the solicitation.

The DIBBS program is guided by (and expects proposers to focus upon) innovative infrastructure addressing the research needs and priorities of these NSF science, engineering, and education communities.

The current solicitation also includes a few modifications in the categories of awards it is seeking:

- This solicitation seeks two types of proposals:
  - early implementations (large "at scale" evaluations, building upon cyberinfrastructure capabilities of existing research communities or



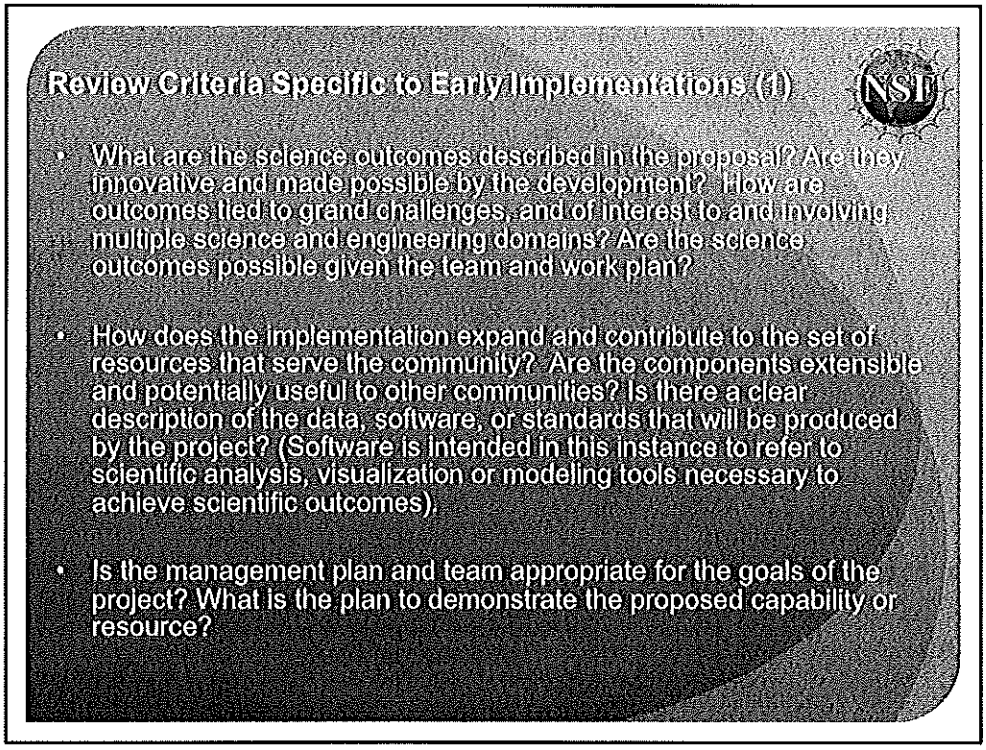
Early Implementation Awards are large "at scale" evaluations, building upon the data resource capabilities of existing research communities or recognized community data collections, enhancing and extending the capabilities with broad community engagement.

Specific Requirements for Early Implementation Awards:

Collaboration/Synergy: Early Implementations Awards will address data challenges by fostering collaborations between cyberinfrastructure experts and existing data resource efforts across scientific and engineering domains. Proposals must identify specific scientific and engineering communities and data/ cyberinfrastructure facilities that will participate in the efforts. Similarly, proposals must identify participating cyberinfrastructure, computer science, industry, international and agency partners.

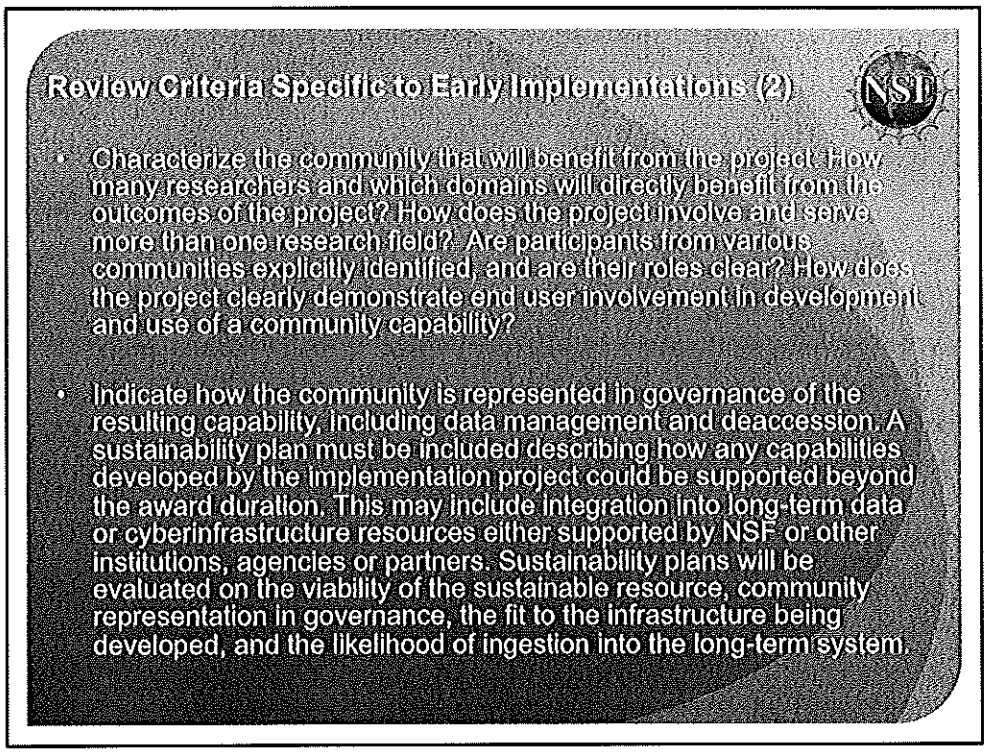
Benefits to Research Communities: Proposals should articulate the rationale for the proposed capability: its responsiveness to community needs, and the anticipated impact on advancing science, engineering, and education. Proposals should also describe the potential for extending the capabilities to other research communities. Proposals will be evaluated on the innovation and breadth of the science outcomes, as well as how other researchers will benefit from the developed capabilities.

Innovativeness of the Cyberinfrastructure Approach: Describe how the technology/cyberinfrastructure addresses data-related scientific and engineering



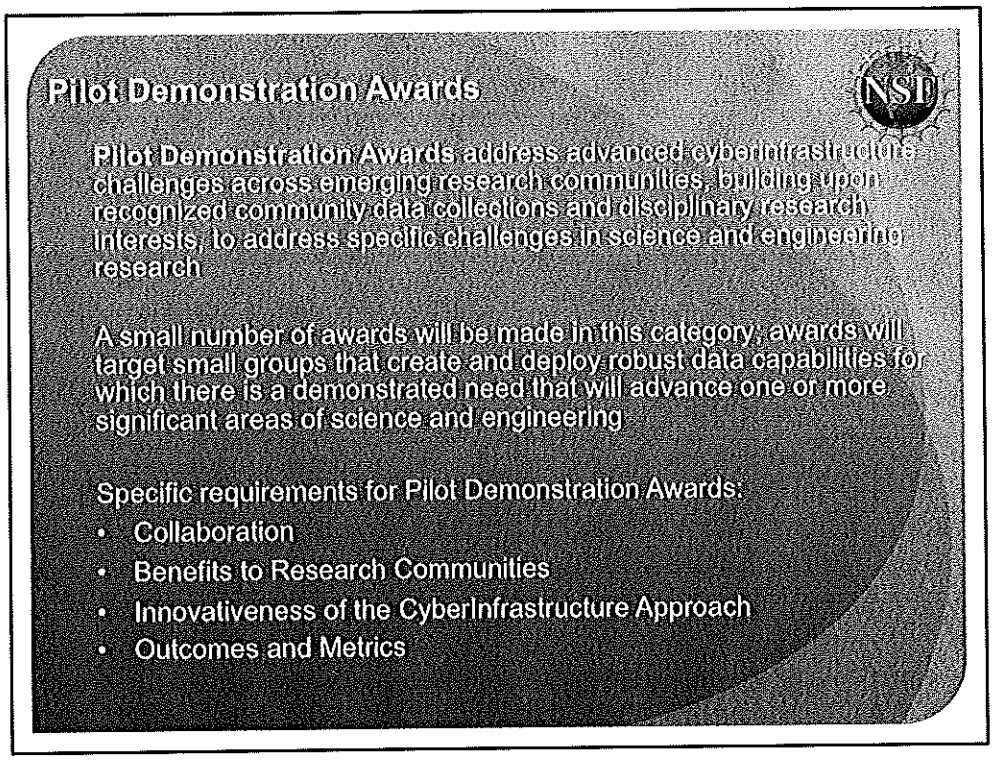
In addition to the Intellectual Merit and Broader Impacts criteria, there are review criteria that are specific to the DIBBs program. Additional criteria that will be considered during peer-review for Early Implementation awards include the following:

- What are the science outcomes described in the proposal? Are they innovative and made possible by the development? How are outcomes tied to grand challenges, and of interest to and involving multiple science and engineering domains? Are the science outcomes possible given the team and work plan?
- How does the implementation expand and contribute to the set of resources that serve the community? Are the components extensible and potentially useful to other communities? Is there a clear description of the data, software, or standards that will be produced by the project? (Software is intended in this instance to refer to scientific analysis, visualization or modeling tools necessary to achieve scientific outcomes).
- Is the management plan and team appropriate for the goals of the project? What is the plan to demonstrate the proposed capability or resource?



In addition to the Intellectual Merit and Broader Impacts criteria, there are review criteria that are specific to the DIBBs program. Additional criteria that will be considered during peer-review for Early Implementation awards include the following:

- Characterize the community that will benefit from the project: How many researchers and which domains will directly benefit from the outcomes of the project? How does the project involve and serve more than one research field? Are participants from various communities explicitly identified, and are their roles clear? How does the project clearly demonstrate end user involvement in development and use of a community capability?
- Indicate how the community is represented in governance of the resulting capability, including data management and deaccession. A sustainability plan must be included describing how any capabilities developed by the implementation project could be supported beyond the award duration. This may include integration into long-term data or cyberinfrastructure resources either supported by NSF or other institutions, agencies or partners. Sustainability plans will be evaluated on the viability of the sustainable resource, community representation in governance, the fit to the infrastructure being developed, and the likelihood of ingestion into the long-term system.

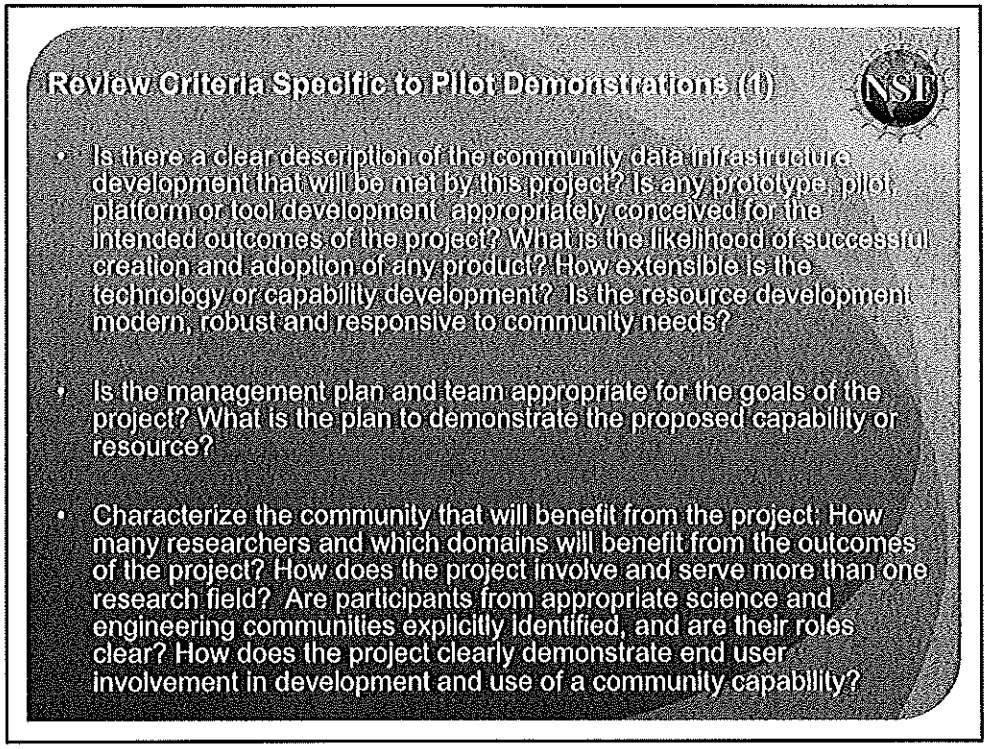


Pilot Demonstration Awards address advanced cyberinfrastructure challenges across emerging research communities, building upon recognized community data collections and disciplinary research interests, to address specific challenges in science and engineering research.

As noted in Slide 5: **Prospective PIs should consult with the Cognizant Program Officers in the relevant research area(s) prior to submitting any proposal to ascertain whether the focus and budget of the proposed work are appropriate for this solicitation.**

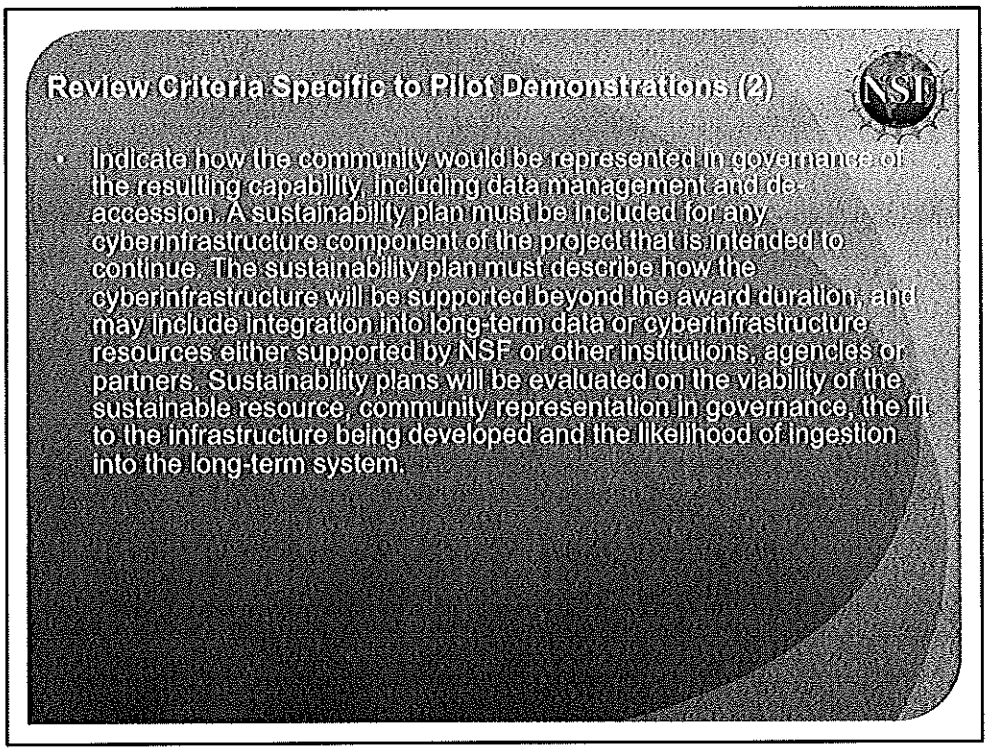
A small number of awards will be made in this category; awards will target small groups that create and deploy robust data capabilities for which there is a demonstrated need that will advance one or more significant areas of science and engineering. It is expected that the created capabilities will be designed so as to demonstrate potential for addressing issues of interoperability, usability, manageability, and sustainability, and will be disseminated into the community as reusable data resources.

Specific Requirements for Pilot Demonstration Awards:
Collaboration: Pilot Demonstration Awards will address data challenges across emerging research communities by fostering collaborations between cyberinfrastructure experts and any existing data resource efforts in the scientific



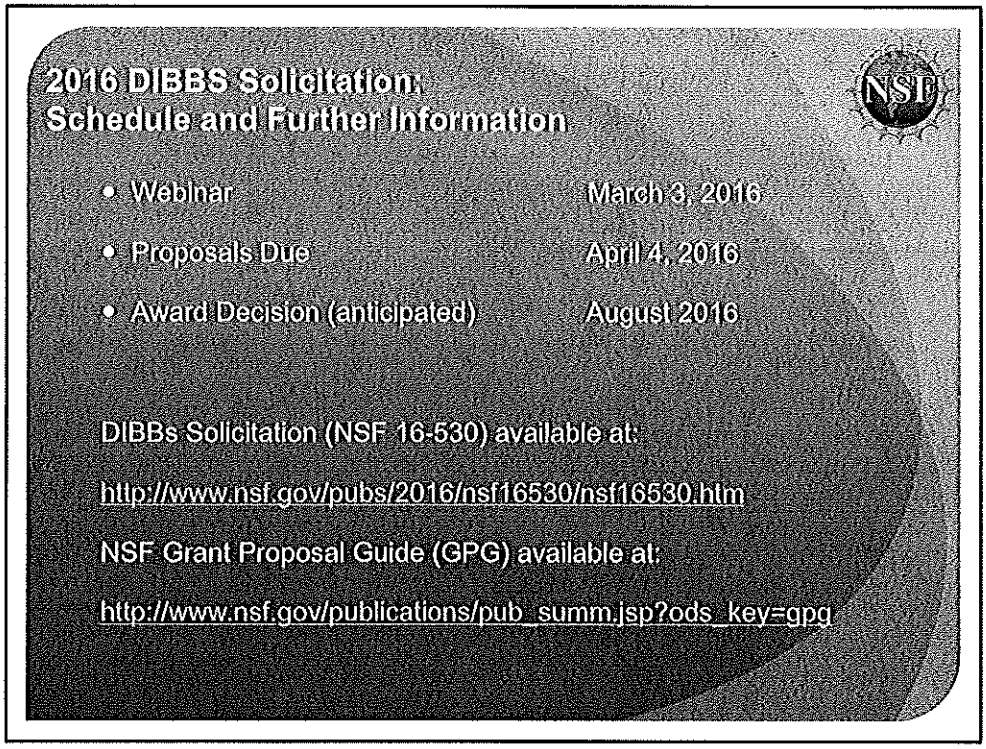
In addition to the Intellectual Merit and Broader Impacts criteria, there are review criteria that are specific to the DIBBs program. Additional criteria that will be considered during peer-review for Pilot Demonstration awards include the following:

- Is there a clear description of the community data infrastructure development that will be met by this project? Is any prototype, pilot, platform or tool development appropriately conceived for the intended outcomes of the project? What is the likelihood of successful creation and adoption of any product? How extensible is the technology or capability development? Is the resource development modern, robust and responsive to community needs?
- Is the management plan and team appropriate for the goals of the project? What is the plan to demonstrate the proposed capability or resource?
- Characterize the community that will benefit from the project: How many researchers and which domains will benefit from the outcomes of the project? How does the project involve and serve more than one research field? Are participants from appropriate science and engineering communities explicitly identified, and are their roles clear? How does the project clearly demonstrate end user involvement in development and use of a community capability?



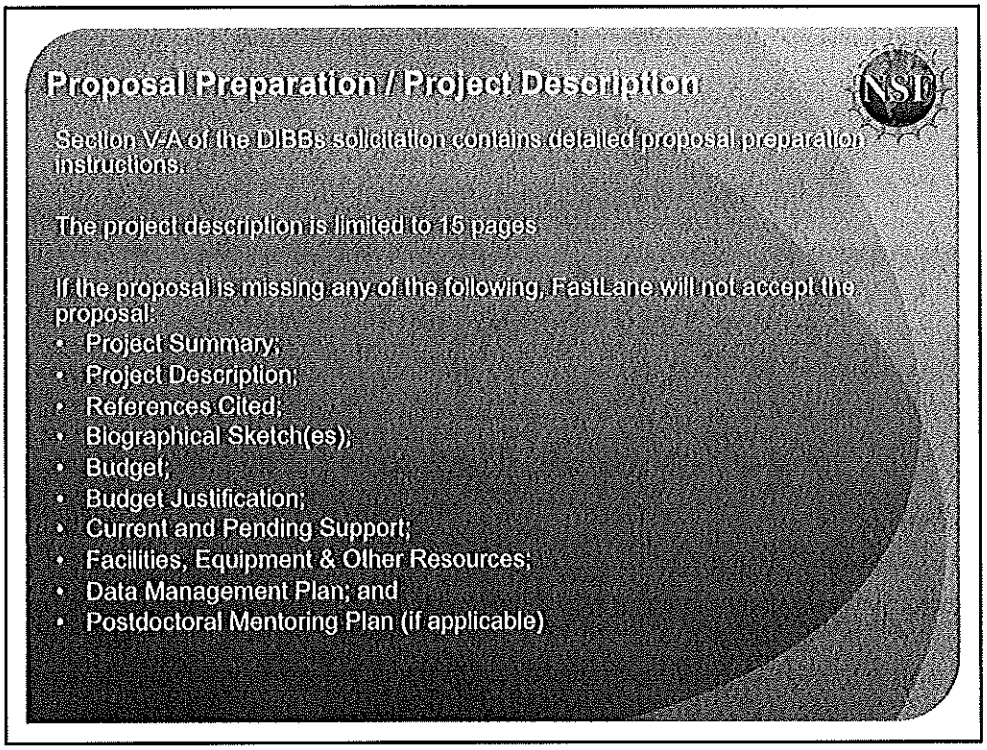
In addition to the Intellectual Merit and Broader Impacts criteria, there are review criteria that are specific to the DIBBs program. Additional criteria that will be considered during peer-review for Pilot Demonstration awards include the following:

- Indicate how the community would be represented in governance of the resulting capability, including data management and de-accession. A sustainability plan must be included for any cyberinfrastructure component of the project that is intended to continue. The sustainability plan must describe how the cyberinfrastructure will be supported beyond the award duration, and may include integration into long-term data or cyberinfrastructure resources either supported by NSF or other institutions, agencies or partners. Sustainability plans will be evaluated on the viability of the sustainable resource, community representation in governance, the fit to the infrastructure being developed and the likelihood of ingestion into the long-term system.



DIBBs proposals will be due April 4, 2016; award decisions are anticipated in August 2016.

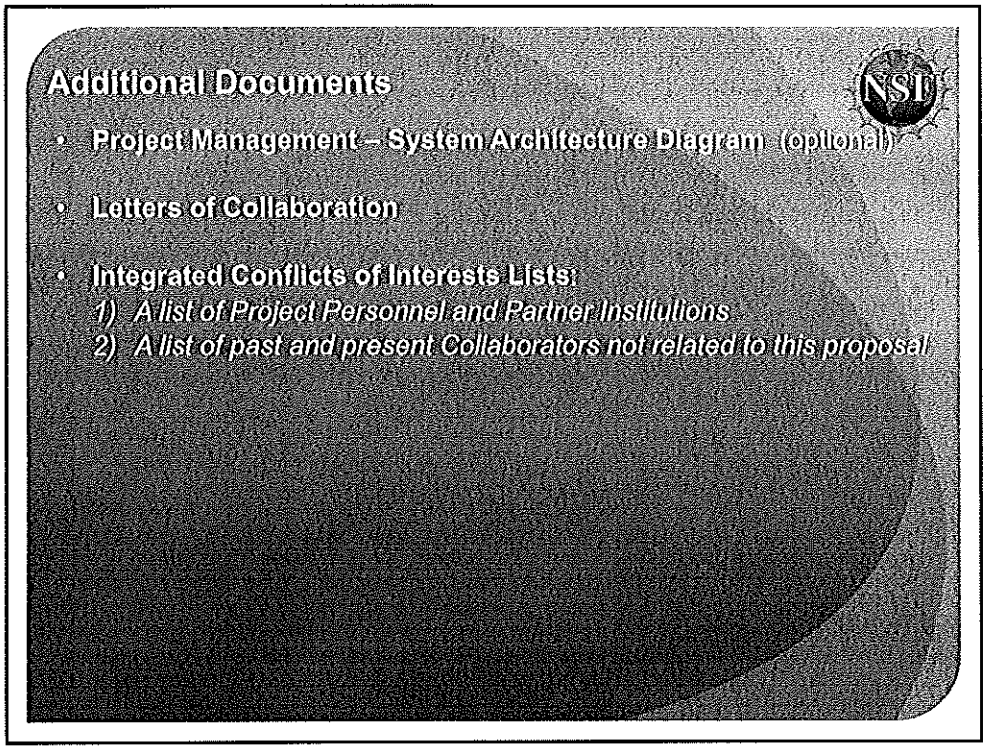
Besides the webinar being held today (March 3, 2016), there are a number of sources of additional information. The DIBBs Solicitation (NSF 14-530) can be found at:
http://www.nsf.gov/pubs/2016/nsf16530/nsf16530.htm
and the NSF Grant Proposal Guide (GPG) is available at:
http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg



Section V-A of the DIBBs solicitation contains detailed proposal preparation instructions.

The project description is limited to 15 pages.

FastLane will check for required sections of the full proposal, in accordance with *Grant Proposal Guide* (GPG) instructions described in Chapter II.C.2. The GPG requires submission of: Project Summary; Project Description; References Cited; Biographical Sketch(es); Budget; Budget Justification; Current and Pending Support; Facilities, Equipment & Other Resources; Data Management Plan; and Postdoctoral Mentoring Plan, if applicable. If a required section is missing, **FastLane will not accept the proposal.**



he following items are the only items permitted as Supplementary Documentation:

Project Management – System Architecture Diagram. Proposals may include in Supplementary Documents a 1-page system architecture design diagram specifying all critical components, including hardware and/or software and any necessary dependencies affecting system use by the scientific community. The diagram should be referenced in the Project Description.

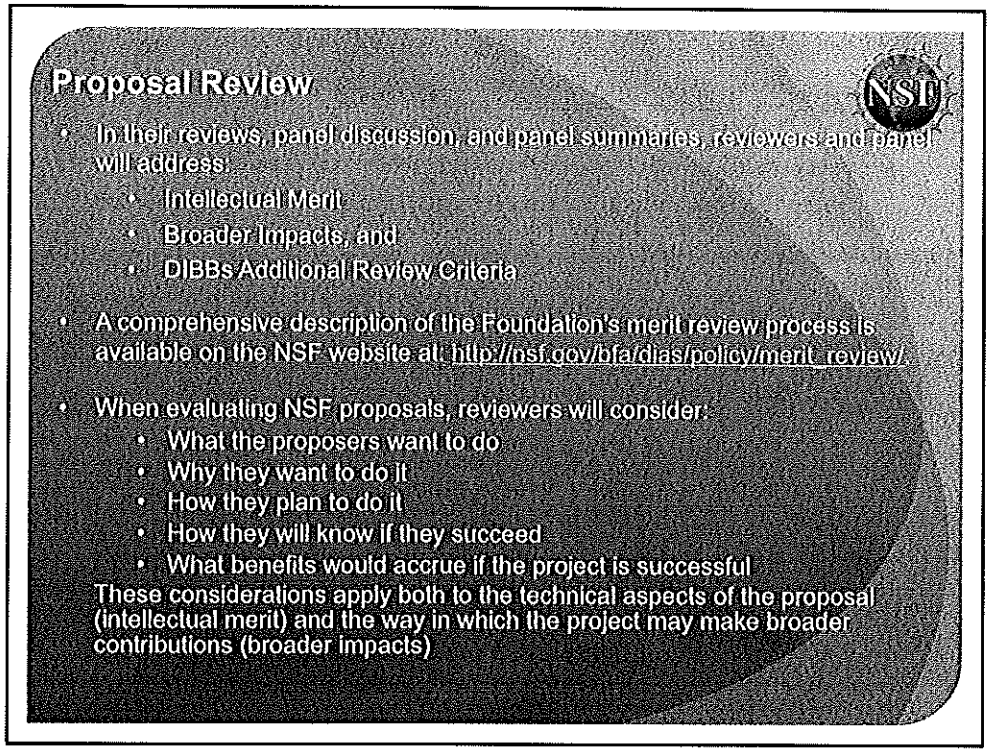
Letters of Collaboration: These must be provided for any organization or individuals mentioned in the Project Description and Management Plan but not receiving funds (i.e., mentioned in the proposal and not listed in any of the associated budgets). Letters of Collaboration must list the personnel participating in the project and their affiliations and describe the work that the unfunded collaborators will be conducting for the project.

Single Copy Documents: The following information is required in addition to that included within the provisions of the GPG or NSF *Grants.gov Application Guide*:

Integrated Conflicts of Interests Lists:

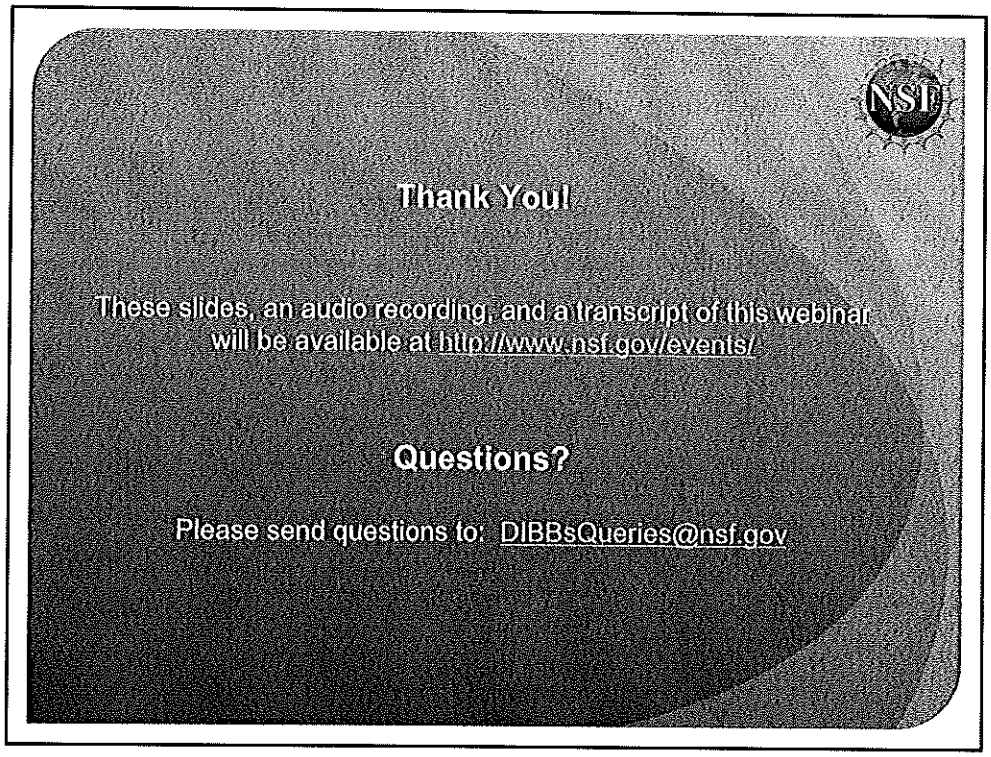
1) *A list of Project Personnel and Partner Institutions:*

(2) A list of past and present Collaborators not related to this proposal:

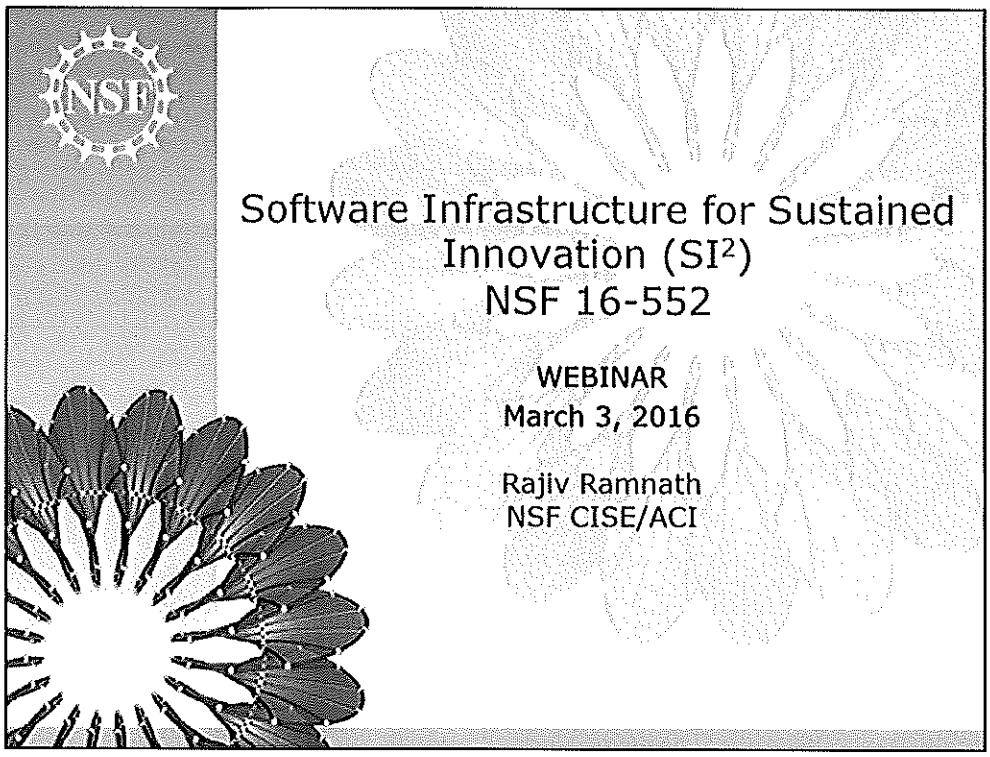


As for all proposals received by NSF, DIBBs reviewers and panelists will be asked to consider the intellectual merit and broader impact for each proposal for their reviews, panel discussions, and panel summaries. In addition to these standard criteria, DIBBs reviewers and panelists will also be asked to consider additional review criteria that are unique to the DIBBs program. (These DIBBs-specific criteria were discussed Slides 7 and 9).

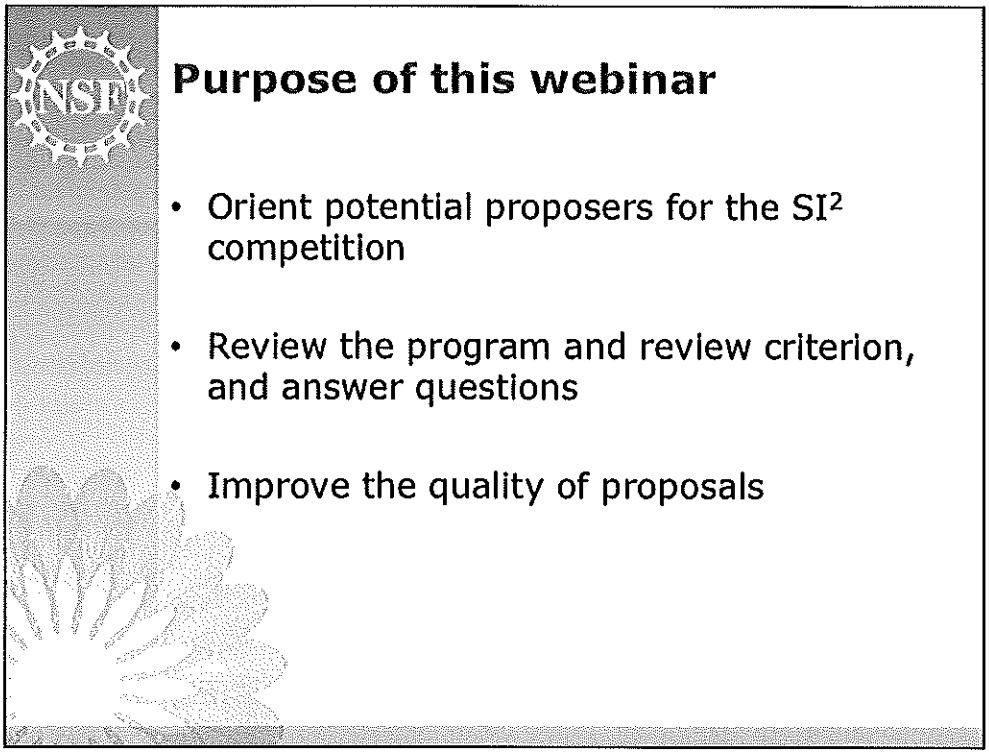
A comprehensive description of the Foundation's merit review process is available on the NSF website at: http://nsf.gov/bfa/dias/policy/merit_review/.



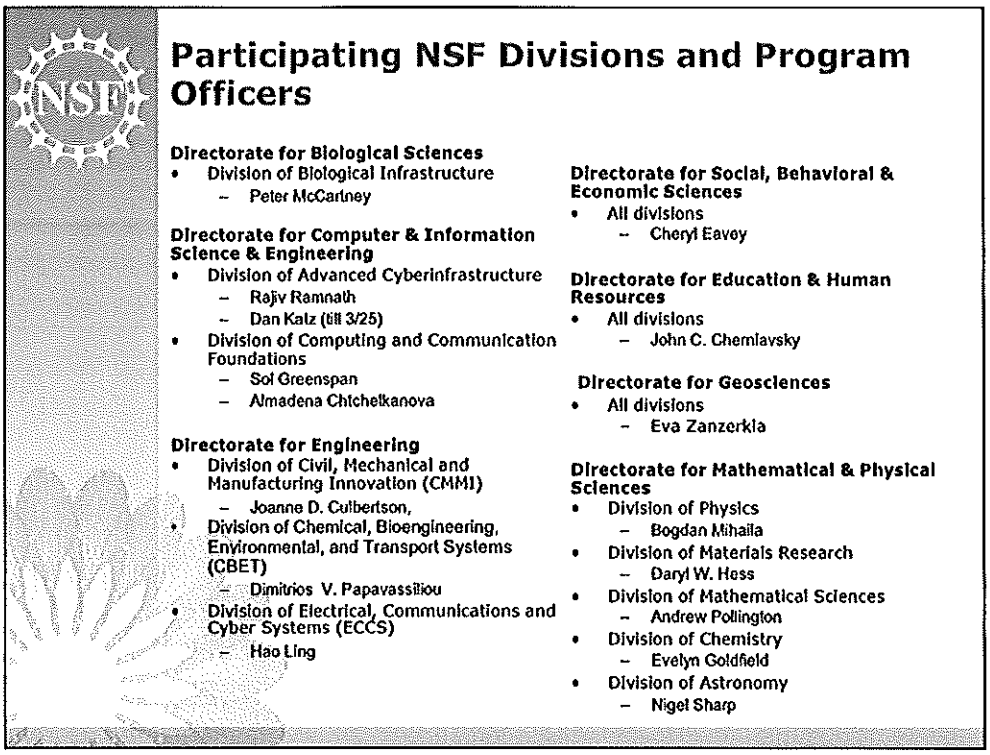
The slides and the transcript for this webcast, as well as an audio recording, will be available at http://www.nsf.gov/events/. (On that web page, you'll need to look for this webcast among the list of events). I welcome your questions now, via email to DIBBsQueries@nsf.gov.



Hi. I'm Rajiv Ramnath from the NSF Division of Advanced Cyberinfrastructure or ACI. I'm the Program Director managing the Software Infrastructure for Sustained Innovation program, or SI2. In this webcast, I'll give a brief overview of the SI2 program and describe some of the most important things you need to know about submitting a proposal.

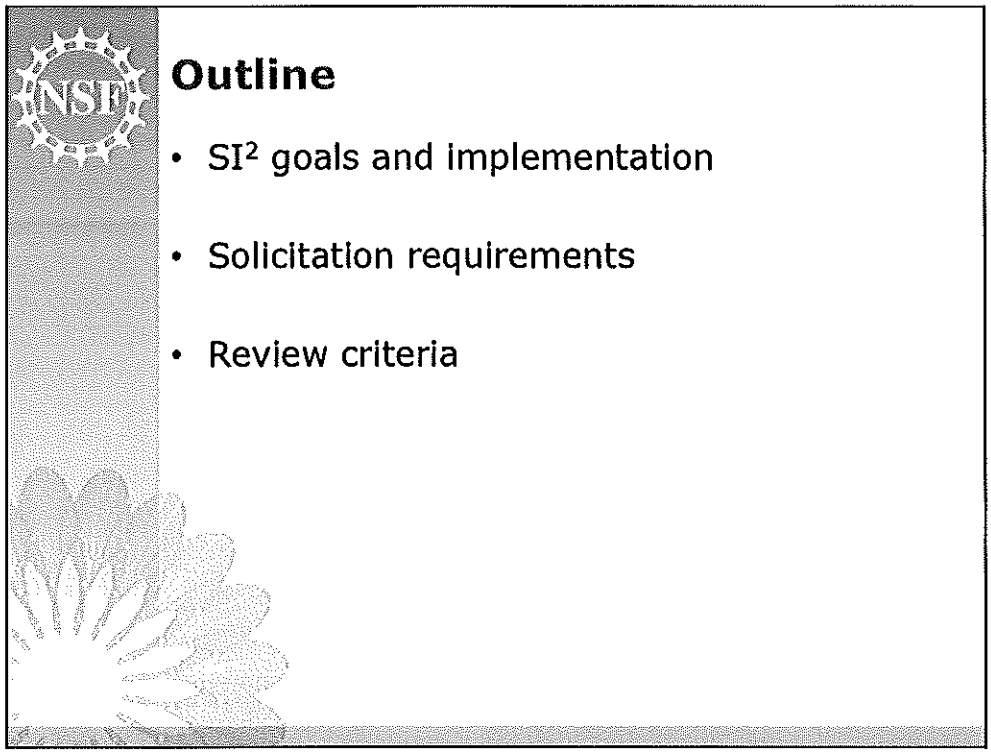


This webinar in intended to orient the research community that is interested in the SI2 competition, review program and peer-review criterion, answer questions, and ultimately improve the quality of proposals.

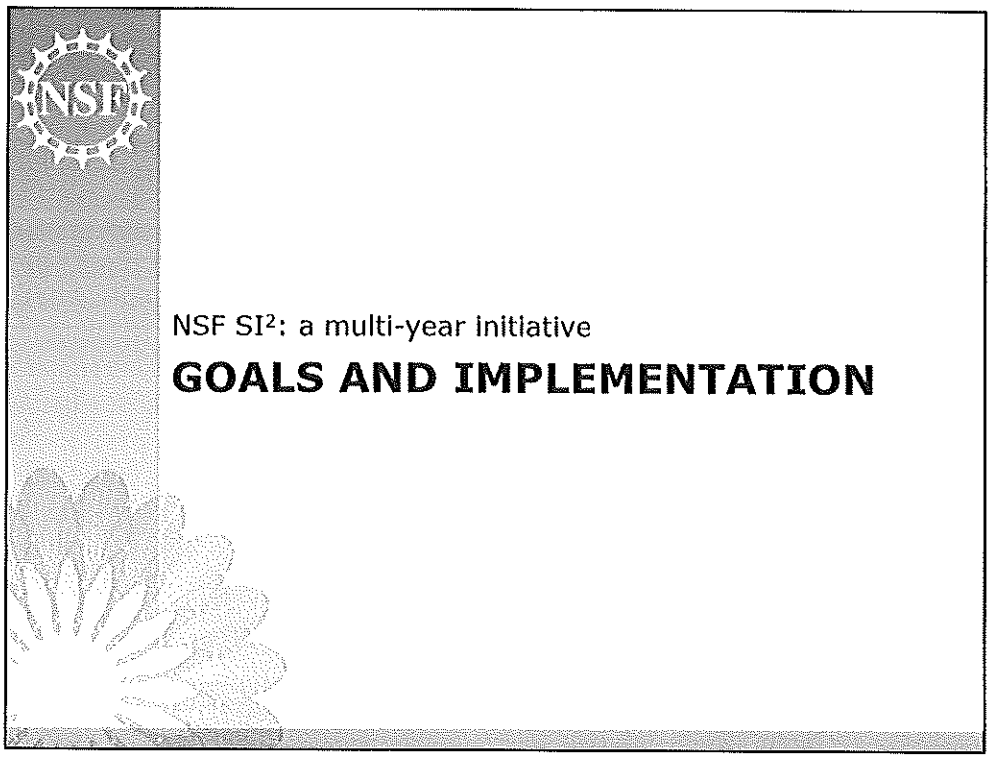


Software Infrastructure for Sustained Innovation is a crosscutting program that involves program officers from every NSF Directorate. Participating program officers are listed here, and can be reviewed on solicitation web page at:

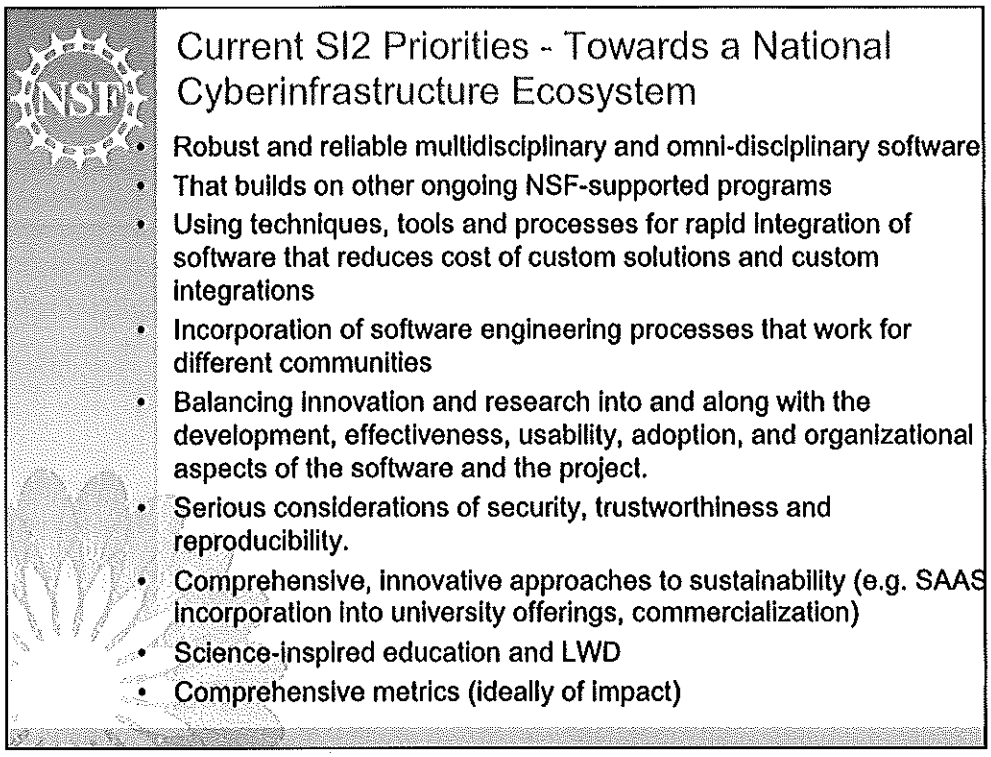
http://www.nsf.gov/pubs/2016/nsf16532/nsf16532.htm



Here is the agenda for today's presentation. I'll start by discussing the goals of the SI2 program and how SI2 is structured to achieve those goals. Next, I'll briefly cover some important aspects of the solicitation including the types of awards to be made, submission requirements, and deadlines. I will then survey the review criteria, with a particular focus on those review criteria that are unique to the SI2 program. Finally, I'll cover a few frequently asked questions, and invite further questions from you, the audience, that I will try to answer.

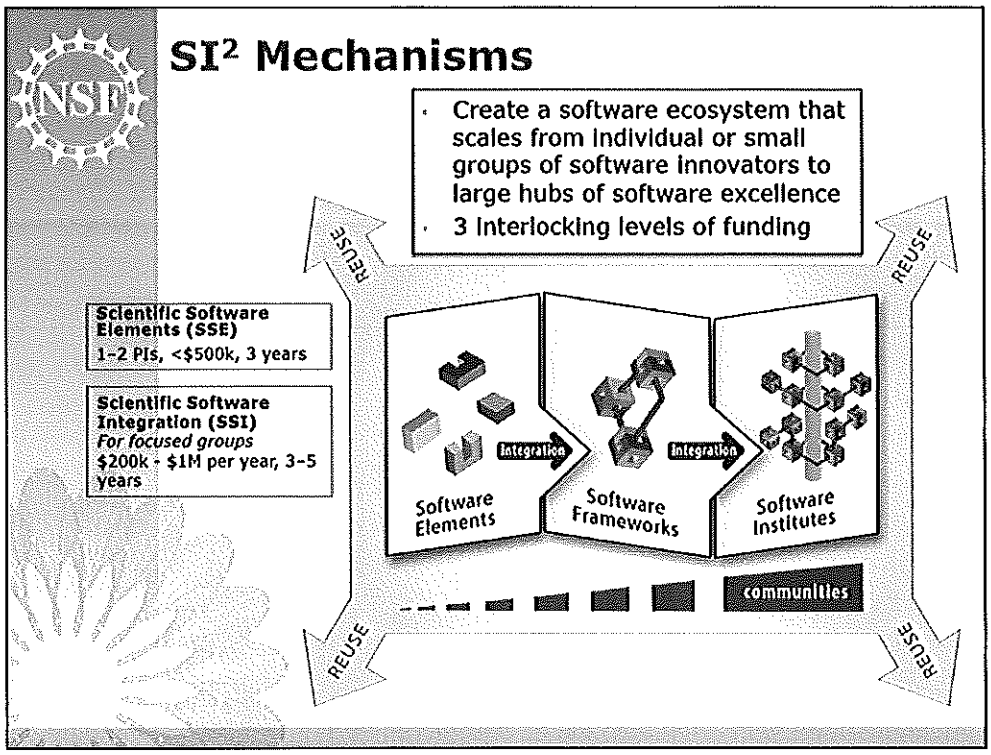


First, goals and implementation strategies for SI2



NSF program provides a framework for software development and support to advance NSF research in science and engineering via a national cyberinfrastructure ecosystem. Thus, its priorities are to support, encourage and incentivize:

- The creation of robust and reliable multidisciplinary and omni-disciplinary software
- That builds on other ongoing NSF-supported programs
- Using techniques, tools and processes for rapid integration of software that reduces cost of custom solutions and custom integrations
- Incorporation of software engineering processes that work for different communities
- That includes balanced innovation and research on the development, effectiveness, usability, adoption, and organizational aspects of the software and the project, and embedded into the software development, deployment and support.
- Serious considerations of security, trustworthiness and reproducibility,
- Comprehensive, innovative approaches to sustainability (e.g. SAAS, incorporation into university offerings, commercialization),
- Science-inspired education and LWD, all measured by

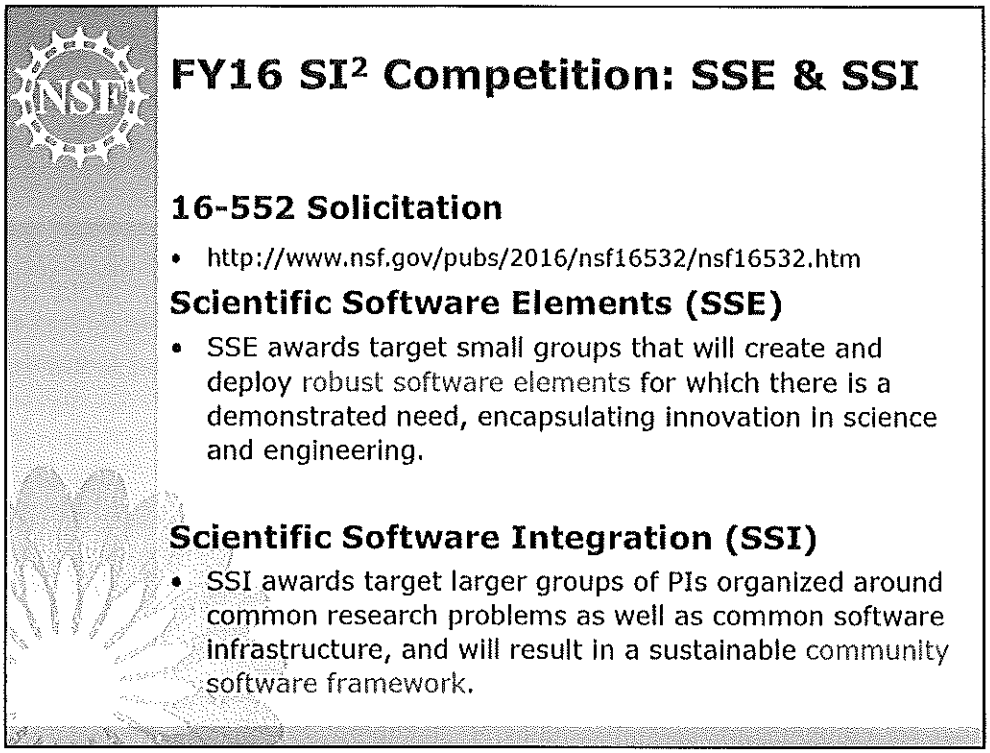


Ultimately, NSF seeks to create a software ecosystem that scales from individual or small groups of software innovators to large hubs of software excellence. To create this ecosystem, we will use three interlocking levels of funding.

First is Software Elements, which map to SI2 Scientific Software Elements (SSEs), covered by this solicitation. SSE proposals focus on projects led by a small number of investigators, and can cost up to $500,000 over up to three years.

Next is Software Frameworks, which map to SI2 Scientific Software Integrations (SSIs) , covered by this solicitation. SSI Proposals are for focused groups, and can cost between $200,000 and $1,000,000 per year for three to five years. Software frameworks can integrate multiple Software Elements, whether funded by NSF or not.

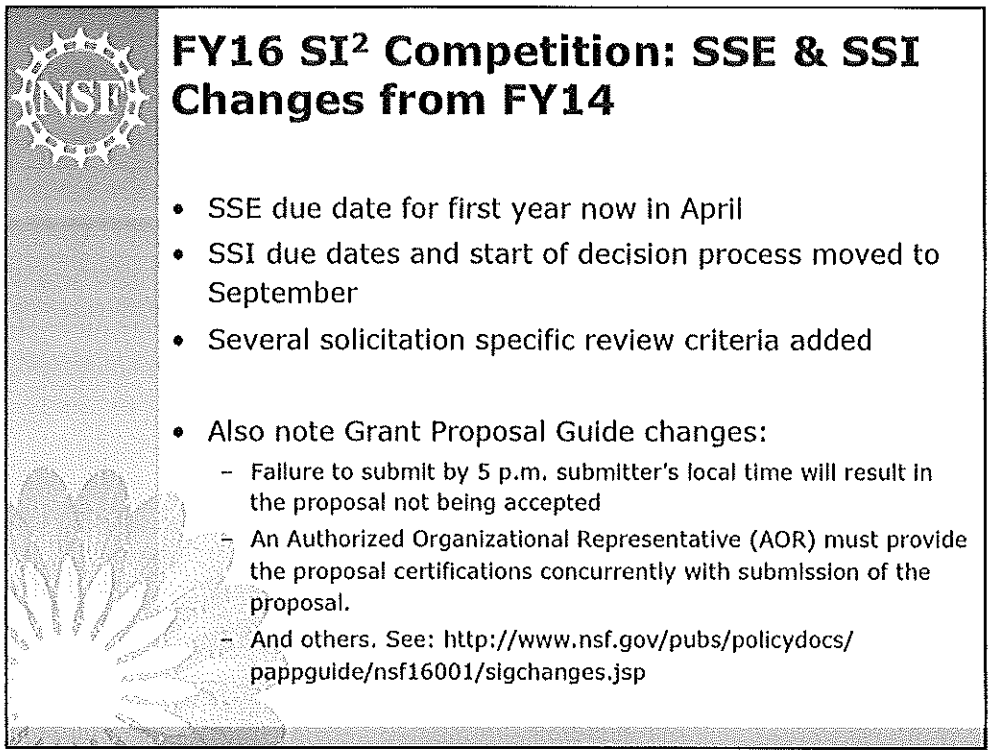
As the research ecosystem grows to include entire communities, support will be provided for software institutes, which will work on issues that support software development at all levels.



The current SI2 solicitation, NSF 16-552, can be found at http://www.nsf.gov/pubs/2016/nsf16532/nsf16532.htm. This solicitation includes information on SSE awards that target small groups that will create and deploy robust software elements for which there is a demonstrated need, encapsulating innovation in science and engineering. Information is also provided for SSI awards that target larger groups of principal investigators organized around common research problems as well as common software infrastructure, and that will result in a sustainable community software framework.

Note that as per the solicitation, each SSE award shall not exceed a total of $500,000 and 3 years duration. Each SSI award shall range from $200,000 to $1,000,000 per year, and shall be 3 to 5 years in duration. Projects in the upper portion of this range must be exceptional in terms of scientific impact, and as with all proposals, should be discussed with program officers from the divisions that fund the researchers that would be impacted.

It is strongly recommended that prospective PIs contact Cognizant Program Officers in the division(s) closest to the major disciplinary impact of the

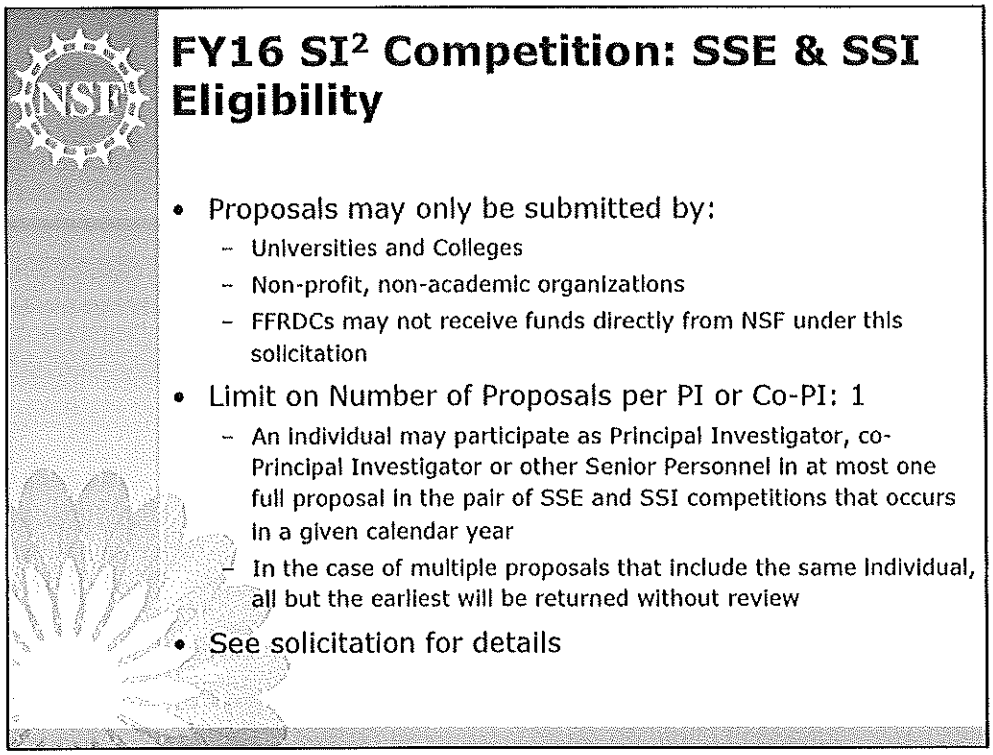


Several changes from the fiscal year 2014 SI2 solicitation have been made to the SI2 solicitation for fiscal year 2016. Firstly, the SSE due date for 2016 is now in April (rather than February, as used to be the case). Note that this is for the first year of the solicitation only. Also, SSI due dates and start of decision process have been moved to September.

Also, several solicitation specific review criteria have been added, and existing criteria have been refined.

Please visit http://www.nsf.gov/pubs/2016/nsf16532/nsf16532.htm for more information on specific due dates and the revised solicitation review criteria.

Also note several important changes in the Grant Proposal Guide: http://www.nsf.gov/pubs/policydocs/pappguide/nsf16001/sigchanges.jsp. Two key changes are that failure to submit by 5 p.m. submitter's local time will result in the proposal not being accepted. Also, an Authorized Organizational Representative (AOR) must provide the proposal certifications - concurrently

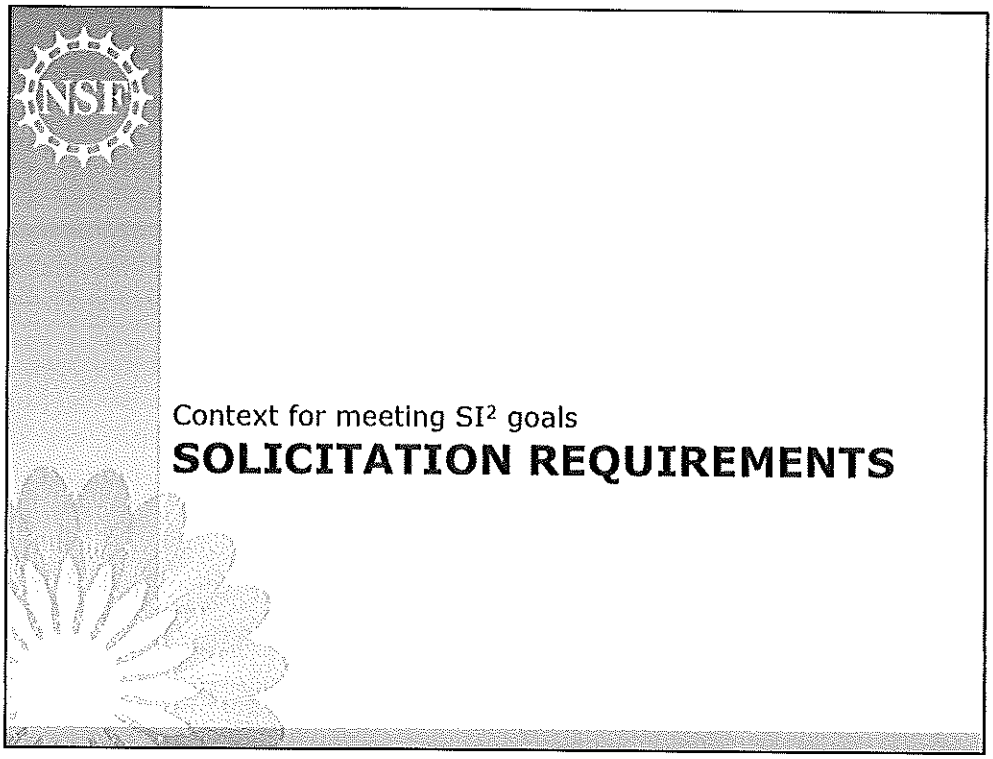


The eligibility criteria for the SI2 program are as follows:

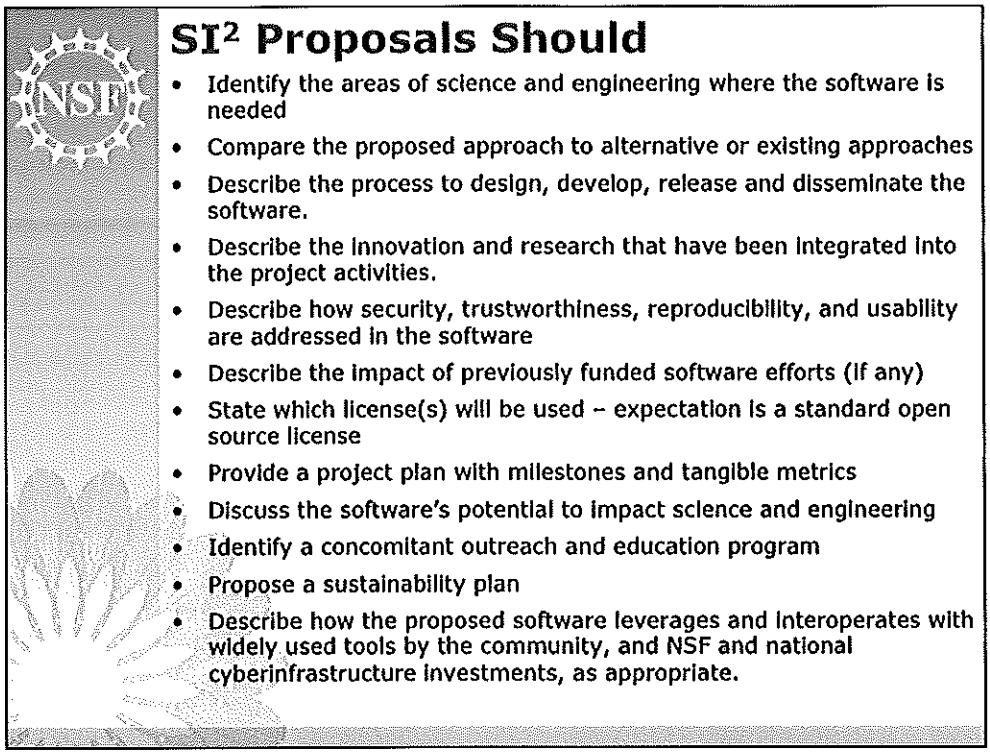
Proposals may only be submitted by universities and colleges or non-profit, non-academic organizations. Federally-funded research and development centers (FFRDCs) may not receive funds directly from NSF under this solicitation.

The number of proposals per principal investigator or co-principal investigator is limited to one. An individual may participate in a proposal as a principal investigator, co-principal investigator, or other senior personnel in at most one full proposal for each pair of SSE/SSE competitions that occurs in a given calendar year. In the case of multiple proposals that include the same individual, all but the earliest will be returned without review.

Please review the solicitation for details.

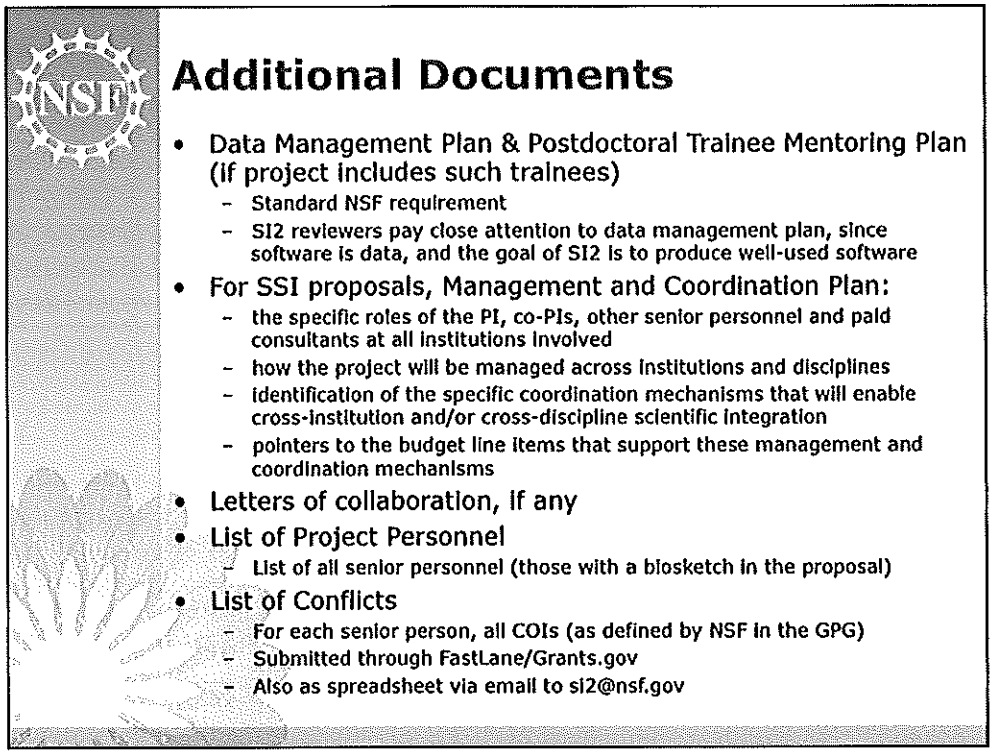


Next, solicitation requirements



SI² Proposals should

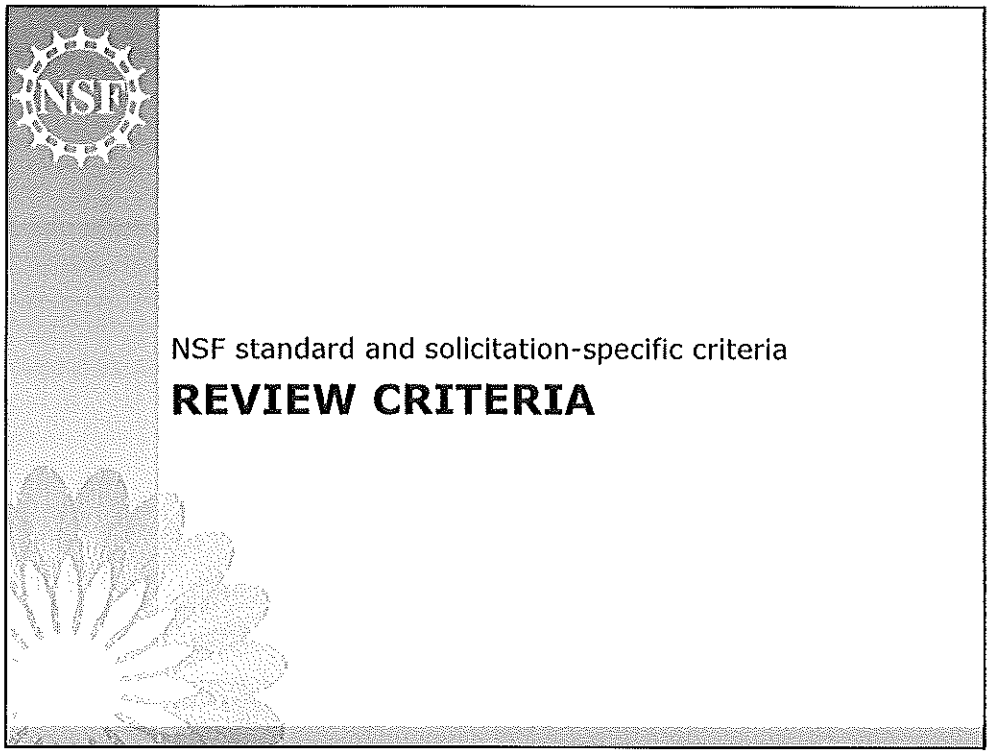
- Identify the areas of science and engineering where the software is needed
- Compare the proposed approach to alternative or existing approaches
- Describe the process to design, develop, release and disseminate the software.
- Describe the innovation and research that have been integrated into the project activities.
- Describe how security, trustworthiness, reproducibility, and usability are addressed in the software
- Describe the impact of previously funded software efforts (if any)
- State which license(s) will be used – expectation is a standard open source license
- Provide a project plan with milestones and tangible metrics
- Discuss the software's potential to impact science and engineering



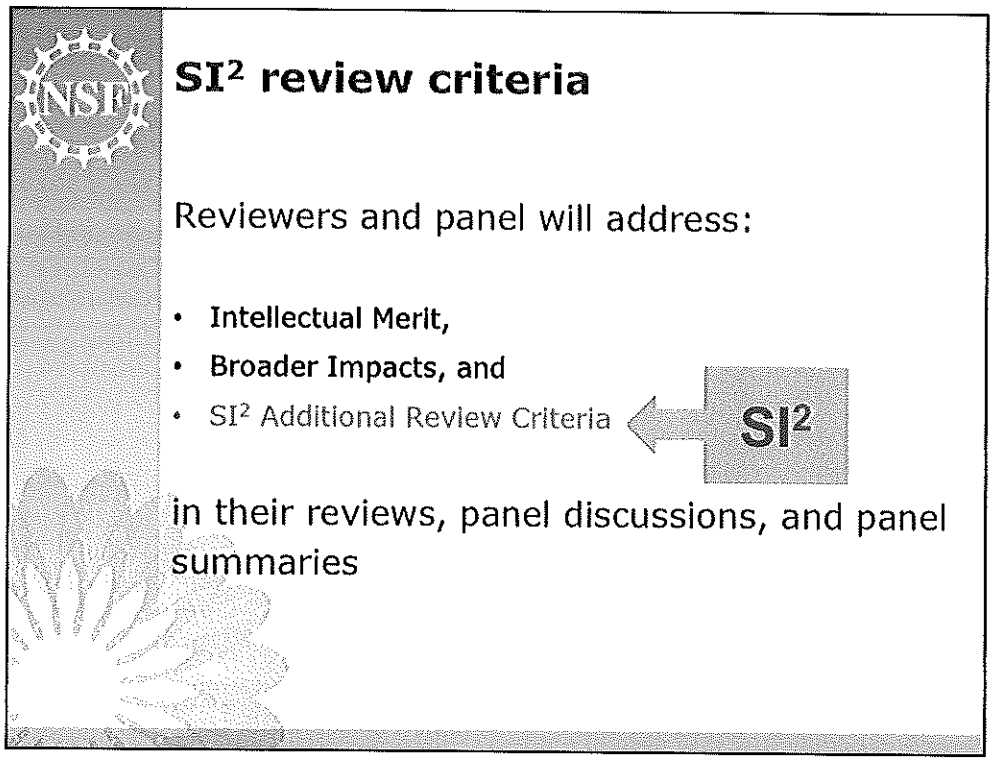
Additional documents include:

A data management plan and postdoctoral trainee mentoring plan (if the project includes such trainees). This is a standard NSF requirement. SI2 reviewers pay close attention to the data management plan since software is data and the goal of SI2 is to produce well-used software.

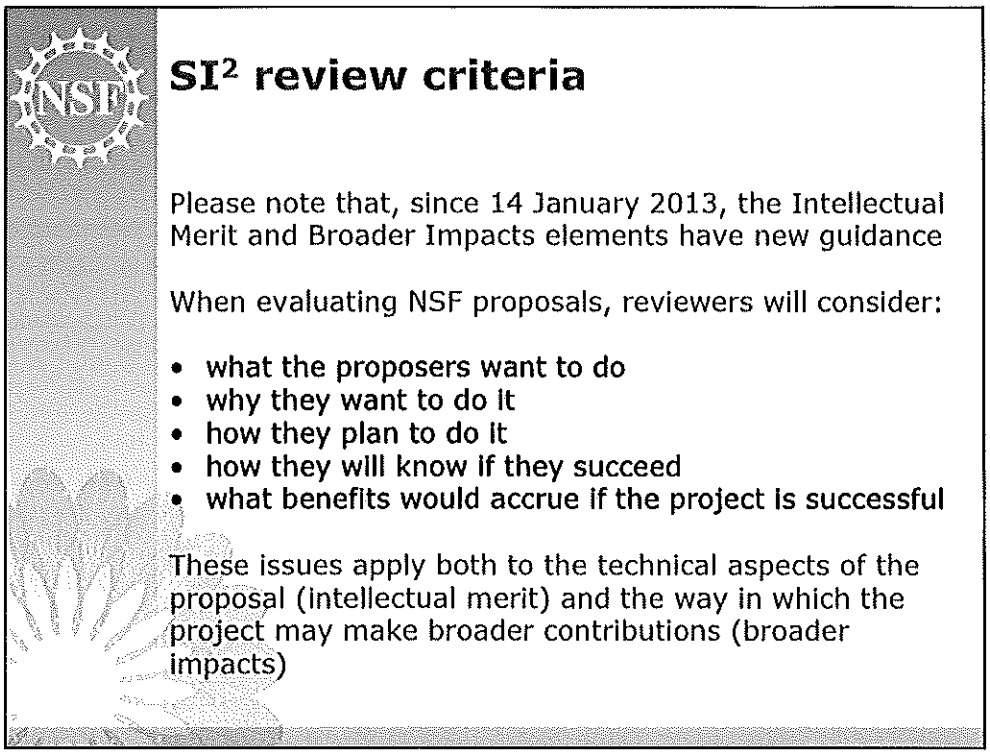
For SSI proposals, a management and coordination plan is also required. The specific roles of the principal investigators, co-principal investigators, other senior personnel, and paid consultants at all institutions involved must be outlined. Also, there must be a description of how the project will be managed across institutions and



Now I will review the review criteria for SI2 proposals, with a specific focus on review criteria that are unique to this program.



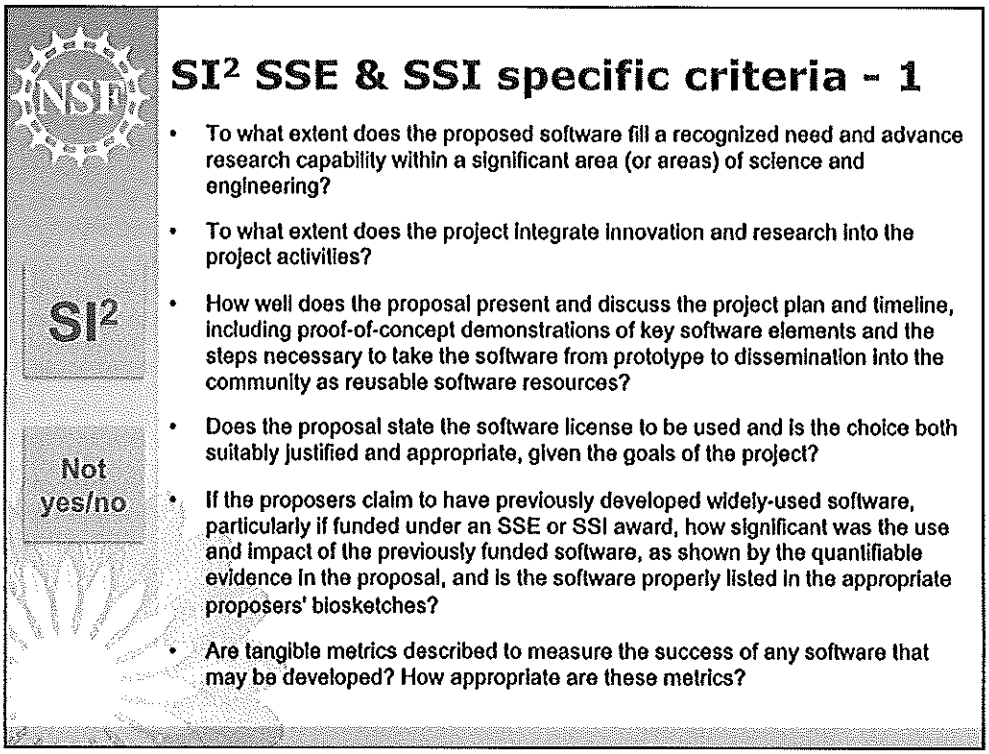
As for all proposals received by NSF, SI2 reviewers and panelists will be asked to consider the intellectual merit and broader impact for each proposal for their reviews, panel discussions, and panel summaries. In addition to these standard criteria, SI2 reviewers and panelists will also be asked to consider additional review criteria that are unique to the SI2 program. More on this in a few moments.



Since 14 January 2013, the intellectual merit and broader impacts review criteria for NSF proposals have been changed. When evaluating NSF proposals, reviewers are now asked to consider:

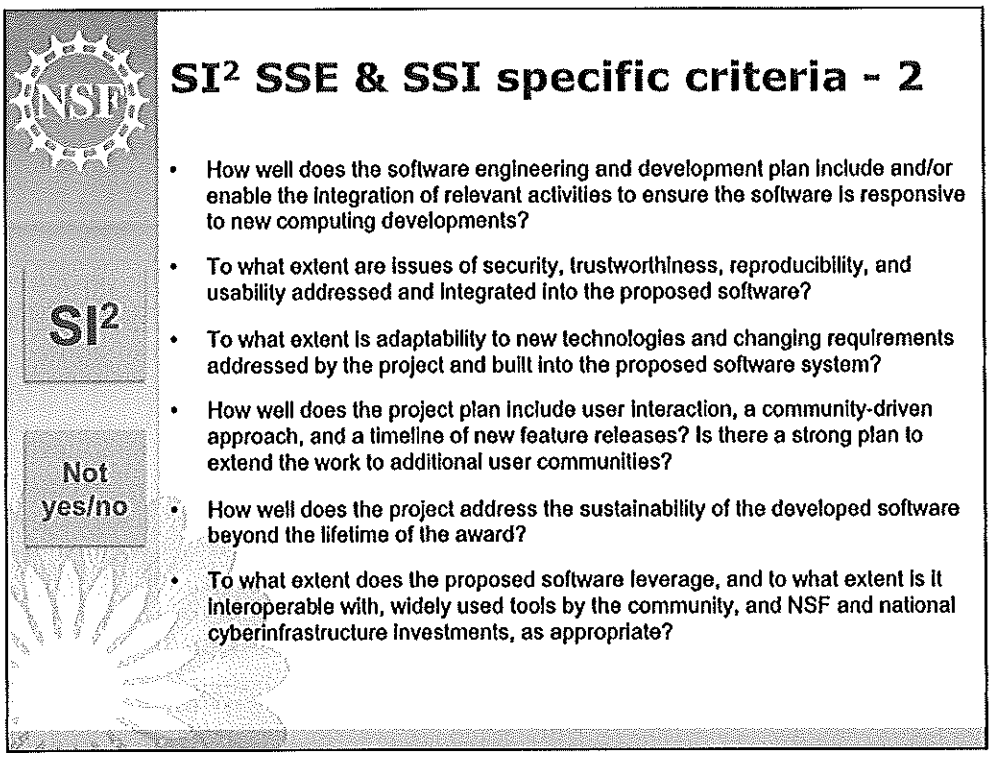
- what the proposers want to do
- why they want to do it
- how they plan to do it
- how they will know if they succeed
- what benefits would accrue if the project is successful

These issues apply both to the technical aspects of the proposal (the intellectual merits) and the way in which the project may make broader contributions (the broader impacts).



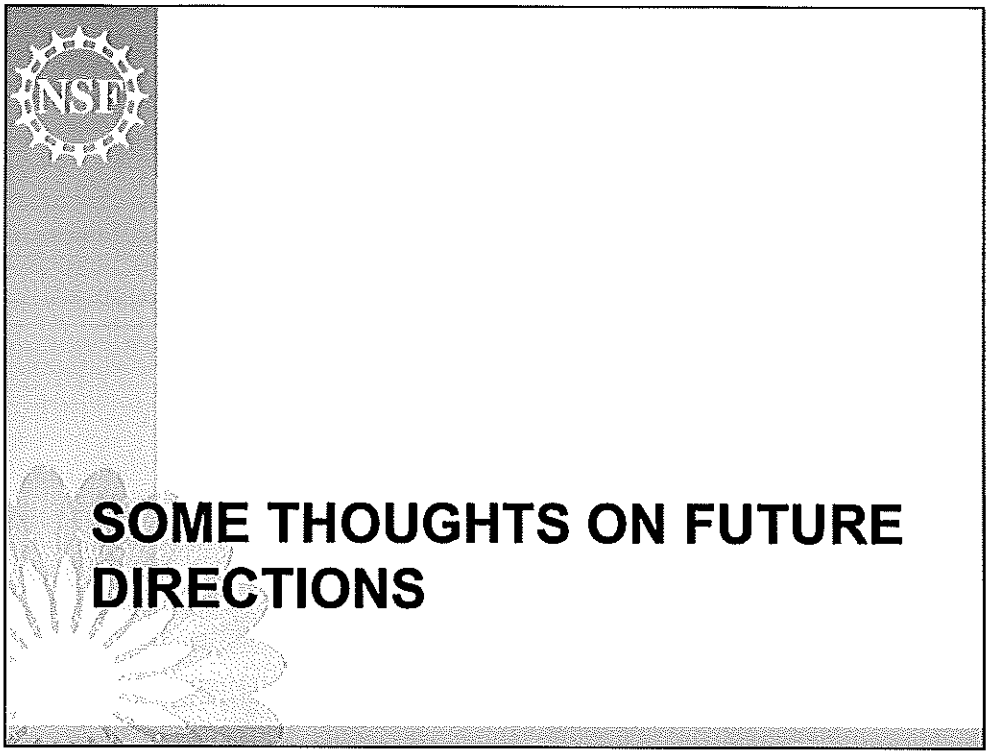
In addition to the Intellectual Merit and Broader Impacts criteria, there are review criteria that are specific to the SI2 program. Additional criteria and questions will be considered during peer-review. These have been broken up across two slides. The first set of criteria includes:

- To what extent does the proposed software fill a recognized need and advance research capability within a significant area (or areas) of science and engineering?
- To what extent does the project integrate innovation and research into the project activities?
- How well does the proposal present and discuss the project plan and timeline, including proof-of-concept demonstrations of key software elements and the steps necessary to take the software from prototype to dissemination into the community as reusable software resources?
- Does the proposal state the software license to be used and is the choice both suitably justified and appropriate, given the goals of the project?
- If the proposers claim to have previously developed widely-used software, particularly if funded under an SSE or SSI award, how significant was the use

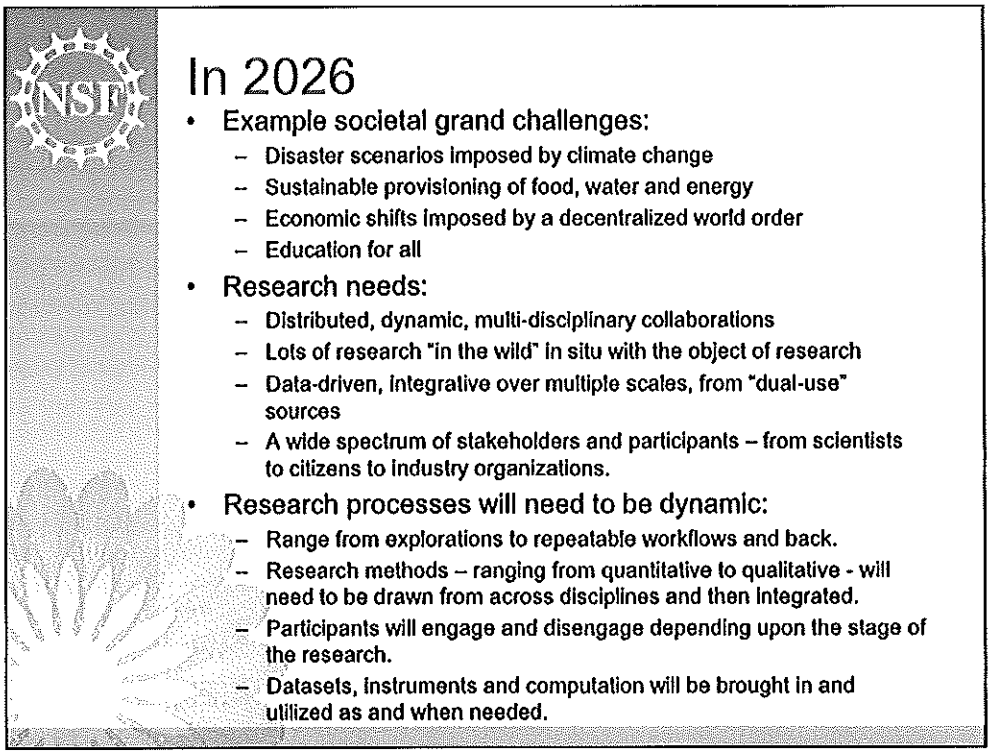


The second set of solicitation specific criteria includes:

- How well does the software engineering and development plan include and/or enable the integration of relevant activities to ensure the software is responsive to new computing developments?
- To what extent are issues of security, trustworthiness, reproducibility, and usability addressed and integrated into the proposed software?
- To what extent is adaptability to new technologies and changing requirements addressed by the project and built into the proposed software system?
- How well does the project plan include user interaction, a community-driven approach, and a timeline of new feature releases? Is there a strong plan to extend the work to additional user communities?
- How well does the project address the sustainability of the developed software beyond the lifetime of the award?
- To what extent does the proposed software leverage, and to what extent is it interoperable with, widely used tools by the community, and NSF and national cyberinfrastructure investments, as appropriate?



I wanted to close the SI2 segment of the webinar with some thoughts on potential future directions that SI2, or an equivalent software program may take.



Software will become extremely important in addressing societal grand challenges, such as:

Disaster scenarios imposed by climate change

Sustainable provisioning of food, water and energy

Economic shifts imposed by a decentralized world order

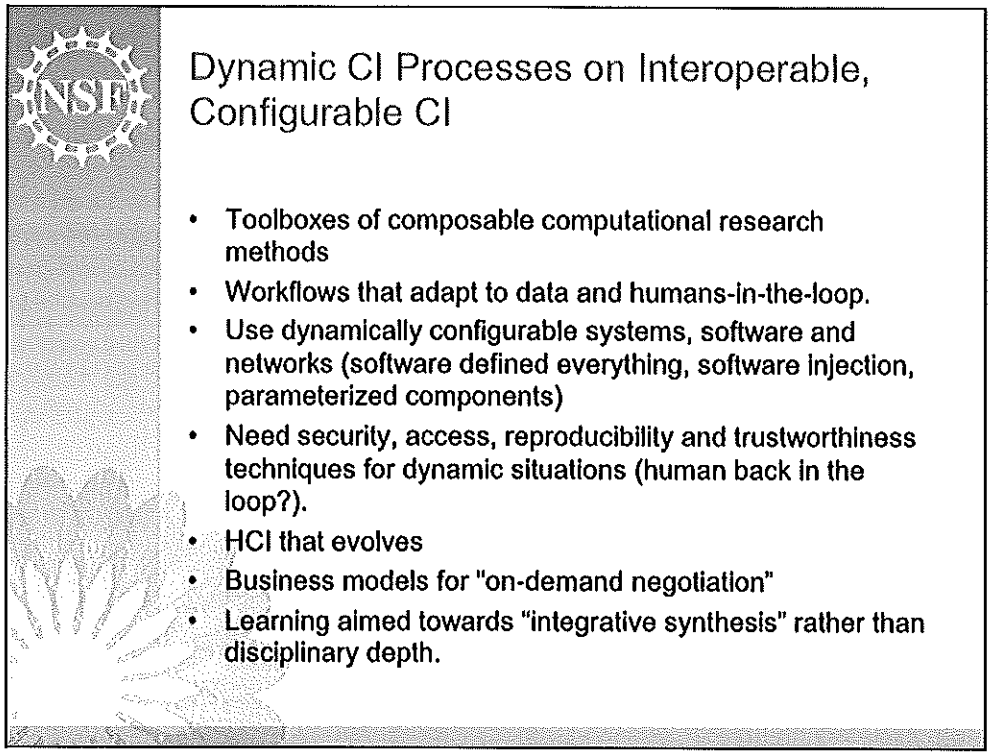
Education for all

Research will become:

Distributed, dynamic, multi-disciplinary collaborations, where

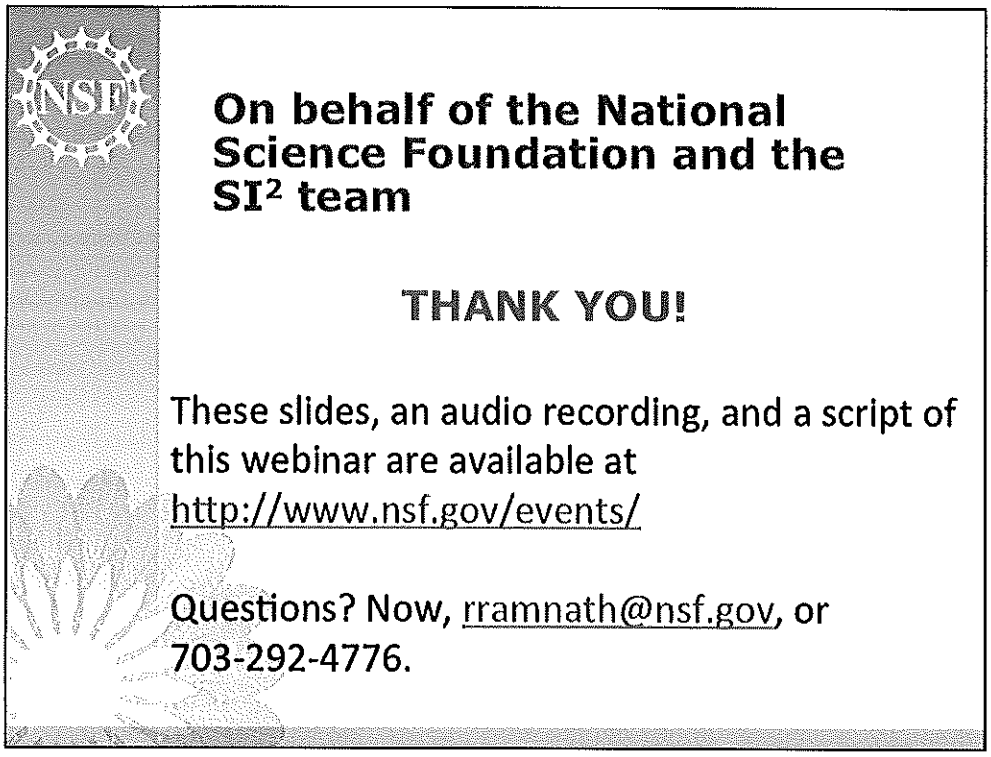
Lots of research is "in the wild" in situ with the objects of research, and is

Data-driven, integrative over multiple scales, with data



Thus, cyber-infrastructure will need to support dynamic CI Processes on Interoperable, configurable CI, comprising:

- Toolboxes of composable computational research methods
- Workflows that adapt to data and humans-in-the-loop.
- Dynamically configurable systems, software and networks (software defined everything, software injection, parameterized components)
- That utilize security, access, reproducibility and trustworthiness techniques for dynamic situations (with the human back in the loop).
- Interact with humans via Human Computer Interfaces that evolves
- Business models may change from static models to models that are built on "on-demand negotiation", such as through auctions.
- Learning and workforce development may also have to change – and be aimed towards "integrative synthesis" rather than disciplinary depth.



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