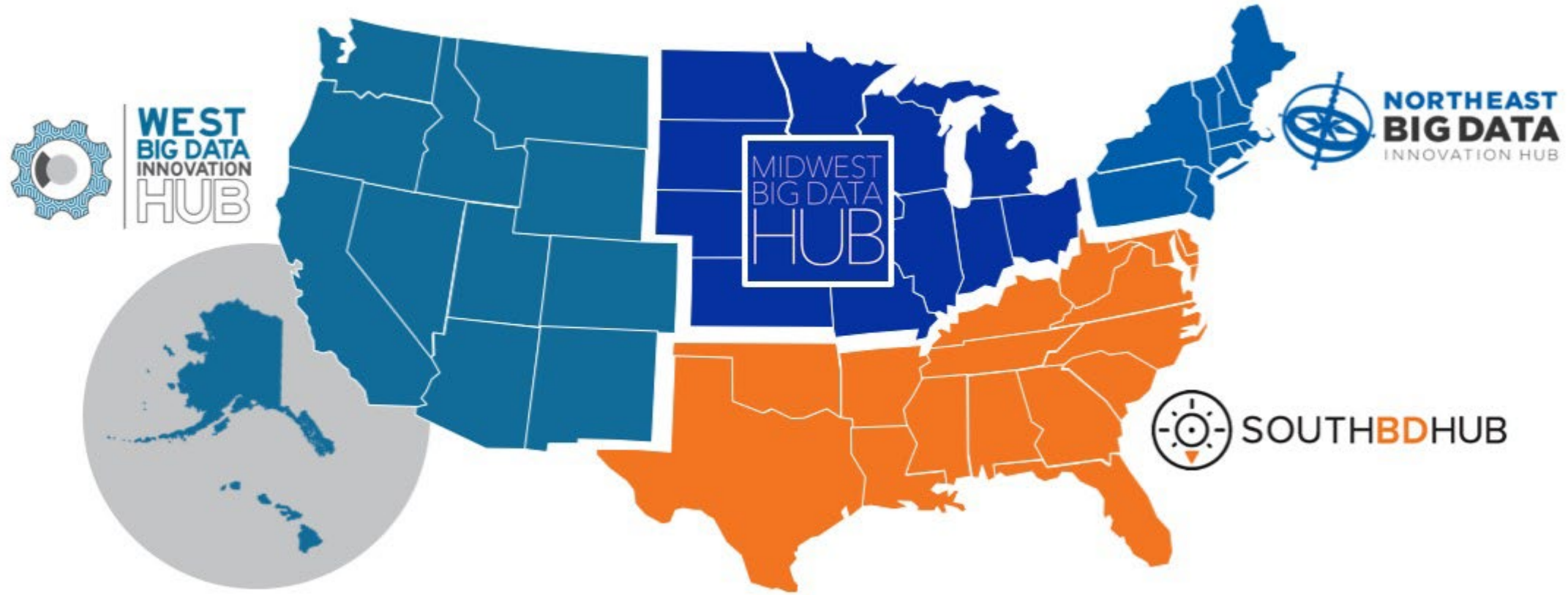
Midwest Big Data Innovation Hub

Collaboration Cafe

May 2023

supported by NSF 1916613

Four regional Hubs, One national mission



What We Do Engage communities, share resources, and build partnerships that harness data science to address societal and scientific challenges.

BigDataHubs.org

Priority Areas and Cross-cutting Themes

- Advanced Materials and Manufacturing
- Big Data in Health
- Digital Agriculture
- Smart & Resilient Communities
- Water Quality

- Data Science Education and Workforce Development
- Cyberinfrastructure and Data Sharing

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Collaboration Cafe webinar series

Goals:

- Building regional capacity for large-scale proposal response
- Growing a cross-disciplinary network of data science collaborators
- Elevating early career researchers
- Creating a more diverse data science community by actively engaging with non-R1 institutions, including minority-serving institutions (MSIs), tribal colleges and universities (TCUs), and predominantly undergraduate institutions (PUIs)
- Partnering with industry, government, nonprofits, and civic organizations to support translational research and transition-to-practice activities

Regular segments:

- Funding opportunity walkthroughs
- Lessons learned from prior awardees
- Researcher lightning talks
- Speed networking
- Small group discussions

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Collaboration Cafe resources

- MBDH website
  - Web page with upcoming sessions
  - Short form for engagement
- Slack community
  - Networking
  - Input on future sessions
  - New solicitations
- Shared Google Drive
  - Running notes doc
  - Relevant prior awards to Midwest institutions
- YouTube playlist of webinar recordings

Cafe Ground Rules

- Multi-disciplinary team science is a core focus here - all proposal ideas are welcome for discussion
- Research proposals are competitive; some people may not be willing to discuss the details of their projects in this venue
- Private conversations in breakout rooms or Slack private messages are private
- Participating in Collaboration Cafe activities falls under our NSF Code of Conduct

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MBDH engagement on proposals

There are multiple opportunities to have MBDH participate on proposals for this program, or other projects:

- Engagement partner: Communications, outreach, community assessments, participation in Hub events and activities
  - Non-exclusive Letter of Collaboration
  - Minimal to no funding to MBDH
- Collaborative partner: Engagement roles + involvement in developing and managing project activities
  - Non-exclusive Letter of Collaboration, subaward, co-PI roles, etc.
  - Funding to recover costs of MBDH staff time and other expenses

- Note: The MBDH is a neutral party and often provides non-exclusive Letters of Collaboration to multiple proposers to a solicitation

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April solicitation: NSF CCRI program

~~CISE Community Research Infrastructure~~

Community Infrastructure for Research in Computer and Information Science and Engineering (CIRC)

NSF ~~22-509~~ 23-589	Proposals due: ~~July 21, 2023~~ September 8, 2023 [Program overview]
Program goals	• Drive discovery and learning in the core CISE disciplines covered by the three participating CISE divisions (CCF, CNS, and IIS) by enabling the creation and enhancement of world-class research infrastructure with integrated suites of tools, resources, user services, and community outreach.

Size and duration (max)	• Planning
	  • CCRI (C): $50k - $100k / 1-1.5 years
	  • Mid-Scale Research (M): $100k - $250k / 2 years
	• Medium (two types: New and Enhance/Sustain): $750k - $2m / 3 years
	• Grand (two types: New and Enhance/Sustain): $2m - $5m / 5 years

Number of awards (est)	• Up to approx. 10 Planning, 12 Medium, and 3 Grand awards per annual cycle
LOI/preproposal?	• No; but since this solicitation is a multi-division program, consulting with a cognizant program officer in the CISE Division proposers are targeting would make sense
Eligibility limits & other guidance	• An individual may participate in at most one proposal, across all classes (except the Planning-M category) per annual cycle, regardless of role, and only one Planning-M • Any PI, co-PI, or other senior project personnel must hold a primary, full-time appointment in a research position at a US-based campus of an eligible organization • Collaborative proposals from multiple eligible organizations are allowed

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May solicitation: NSF Campus Cyberinfrastructure (CC*) program

NSF 23-526	Proposals due: September 11, 2023 [Program overview]
Program goals	• Make investments in coordinated campus-level cyberinfrastructure improvements, innovation, integration, and engineering for science applications and distributed research projects.
Size and duration (max)	• Seven Program Area tracks with differing maximum budgets and durations
Number of awards (est)	• Approx. 30 to 53 awards per cycle (see Area breakdown in solicitation)
LOI/preproposal?	• No
Eligibility limits & other guidance	• Varies depending on Program Area • Time limits on proposals to tracks an institution has previously received an award from • Some tracks require proposers to be of a particular organization type and level of maturity

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NSF CC* proposal guidance (from the solicitation)

Multi-division program within NSF:

- CISE (Directorate for Computer and Information Science and Engineering)
  - Office of Advanced Cyberinfrastructure (OAC)
  - Division of Computer and Network Systems (CNS)
- Office of Integrative Activities / EPSCoR

Program focus

- “The Campus Cyberinfrastructure (CC*) program invests in coordinated campus-level cyberinfrastructure improvements, innovation, integration, and engineering for science applications and distributed research projects.
- Learning and workforce development (LWD) in cyberinfrastructure is explicitly addressed in the program.
- Projects that help overcome disparities in cyber-connectivity associated with geographic location, and thereby advancing the geography of innovation and enabling populations based in these locales to become more nationally competitive in science, technology, engineering, and mathematics (STEM) research and education are particularly encouraged.
- Science-driven requirements are the primary motivation for any proposed activity.”

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NSF CC* Program Areas

Program Area	Maximum Budget	Maximum Duration	Estimated # of awards
1) Data-Driven Networking Infrastructure for the Campus and Researcher	$650k	2 years	3-5
2) Regional Connectivity for Small Institutions of Higher Education	$1.2m	2 years	3-6
3) Network Integration and Applied Innovation	$1m	2 years	5-8
4) Campus Computing / Computing Continuum	$500k	2 years	6-12
5) Regional Computing	$1m	2 years	2-4
6) Data Storage	$500k	2 years	7-10
7) Planning Grants / CI-Research Alignment	$100k / $200k	1 year / 2 years	4-8

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NSF CC* proposal guidance (from the solicitation)

Project Description elements

- See the detailed guidance in the solicitation for each Program Area track
  - Some tracks have specific requirements, e.g., a network diagram for the Networking track (Area 1)
  - Some tracks require itemized quotes from vendors for equipment that would be purchased (note restrictions to US products)
  - Some tracks require engagement with other NSF programs (e.g., ACCESS for Area 5)

Supplementary Docs (examples)

- "All proposals submitted to the CC* program, with the exception of submissions in response to program area (7), must include a Campus CI plan within which the proposed CI improvements are conceived, designed, and implemented in the context of a coherent campus-wide strategy and approach to CI that is integrated horizontally intra- campus and vertically with regional and national CI investments and best practices."
- "Proposals are expected to address within the Campus CI plan the sustainability of the proposed work in terms of ongoing operational and engineering costs. Since security and resilience are fundamental issues in campus CI, the Campus CI plan should address the campus-wide approach to cybersecurity in the scientific research and education infrastructure, including the campus approach to data and privacy."

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NSF CC* review guidance (from the solicitation)

- Standard NSF “Merit Review Principles and Criteria”
  - “Intellectual Merit”
  - “Broader Impacts”

- Additional Review Criteria for CC* proposals
  - The extent to which the work provides a needed capability required by science, engineering and education.
  - The expected impact on the deployed environment described in the proposal, and potential impact across a broader segment of the NSF community.
  - Where applicable, how resource access control, federated identity management, and other cybersecurity related issues and community best practices are addressed.
  - A Cyberinfrastructure (CI) plan [except for area (7) as noted earlier]: To what extent is the planned cyberinfrastructure likely to enhance capacity for discovery, innovation, and education in science and engineering? How well does the plan as presented position the proposing institution(s) for future cyberinfrastructure development? How well does the cyberinfrastructure plan support and integrate with the institutions' science and technology plan? Are IPv6 deployment and InCommon Federation addressed? Are the activities described in the proposal consistent with the institution's cyberinfrastructure plan?
  - See additional criteria for each Program Area in the solicitation
  - “Proposals will be evaluated on the strength of the science enabled (including research and education) as drivers for proposed investment and innovation in campus CI.”
  - “Proposals that demonstrate opportunities to engage students directly in the design, deployment, operation, and advancement of the funded CI activities, consistent with the required Campus CI plan, are encouraged.”

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Discussion

Prior awardees:

- What do you wish you had known? / What would you have done differently?
- What should new proposers be mindful of?
- How has your award impacted your institution and user community?

General questions:

- What unaddressed CI needs exist in the Midwest (and beyond) that collaborators could partner to address?
- Who are the user communities that would be supported?
- What activities are at the right level of readiness?
- Beyond hardware and software, what other resources are needed (e.g., workforce development and support)?

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Get involved

- https://midwestbigdatahub.org/cafe
- info@midwestbigdatahub.org

June 21, 2023

3:00–4:00 p.m. CT / 4:00–5:00 p.m. ET

- Topic: Data Innovations in Agriculture
- Solicitation: USDA NIFA AFRI program

July 19, 2023

3:00–4:00 p.m. CT / 4:00–5:00 p.m. ET

- Topic: Connecting Research and Teaching through the INCLUDES Network
- Solicitation: NSF INCLUDES (22-622)

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