Mid-scale Research Infrastructure (Mid-scale RI)

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Chief Officer for Research Facilities (CORF)
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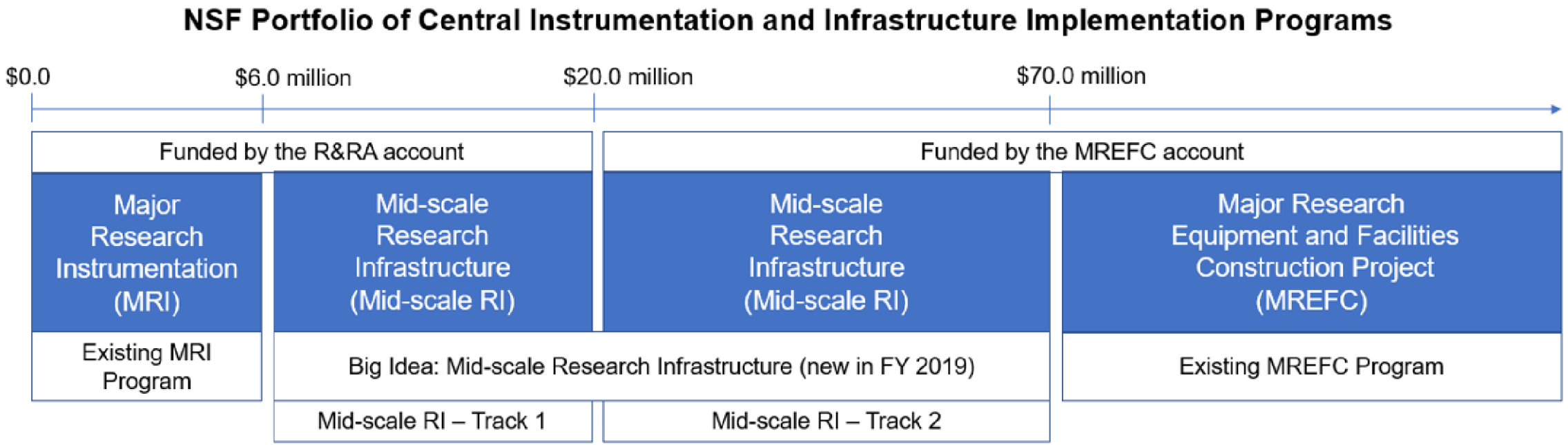
- Presentation Outline
  - Rationale and structure of program.
  - Outcome of Mid-scale RI-1 competition.
  - Status summary of Mid-scale RI-2.

Mid-scale Context

- NSB 2018-40. “Bridging the Gap: Building a Sustained Approach to Mid-scale Research Infrastructure and Cyberinfrastructure at NSF.”
- The Gap and the Bridge:



Mid-scale RI Working Groups

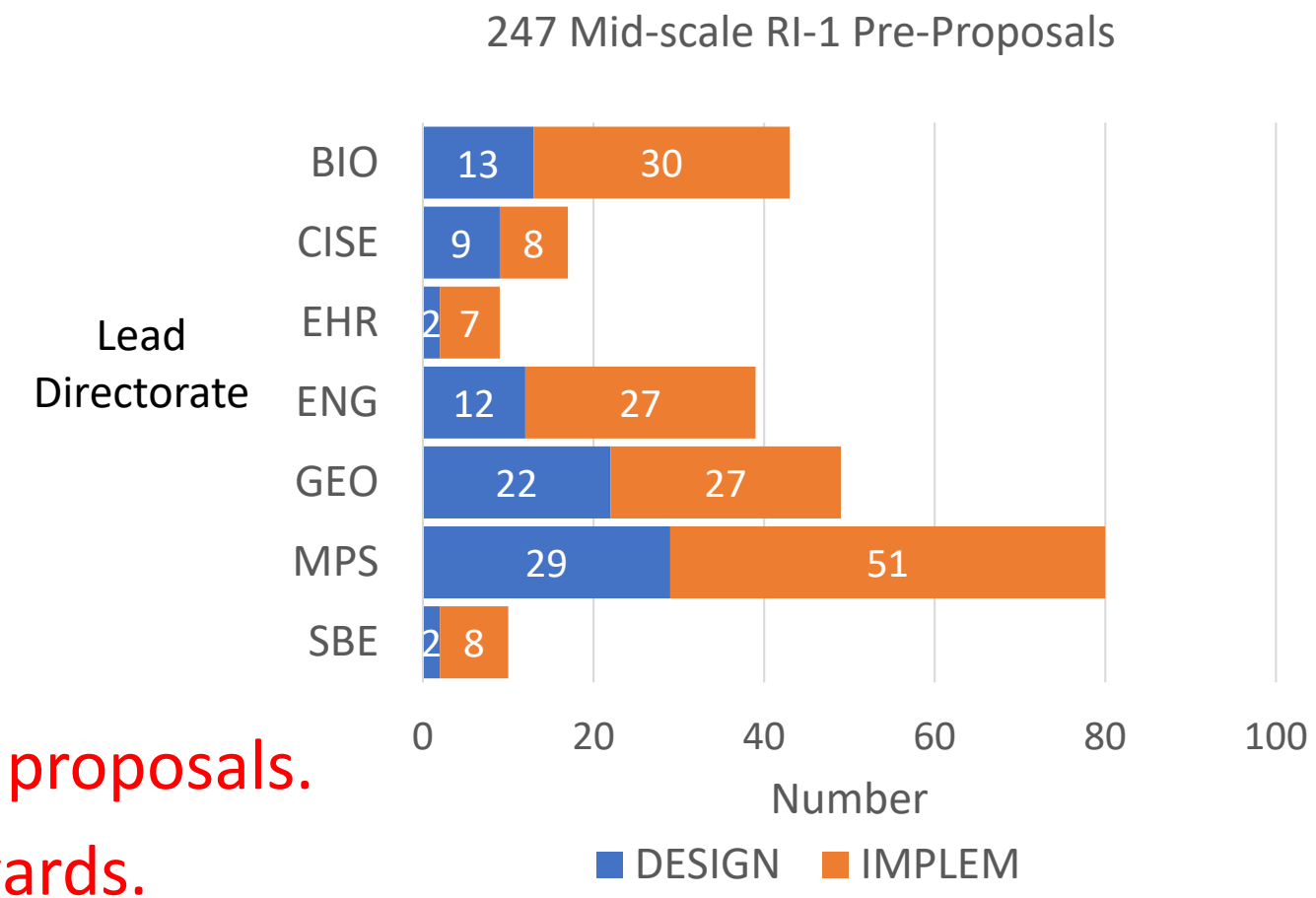
DIR/OFF	Mid-scale RI-1	Mid-scale RI-2
OIA	Randy Phelps (chair)	
BIO	Rob Fleischmann	Sridhar Raghavachari
CISE	Thyaga Nandagopal	Bill Miller
EHR	Steven Turley	Lee Zia
ENG	Paul Lane	Joy Pauschke
GEO	Michael Jackson	Brian Midson (co-chair)
MPS	Rich Barvainis	Allena Opper (co-chair)
SBE	Joseph Whitmeyer	Brian Humes
BFA	Florence Rabanal	Jeff Zivick
OISE	Maija Kukla	
OIA	Stephanie Hill	

Mid-Scale Research Infrastructure Track 1

- Track 1 (Mid-scale RI-1): $6-$20 million Implementation Projects or $0.6-$20 million Design Projects, funded from R&RA account.
- $60 million in FY 2019 Request, $30 million in FY 2020 Request.
- Strategy: fund the most meritorious proposals across all disciplines.

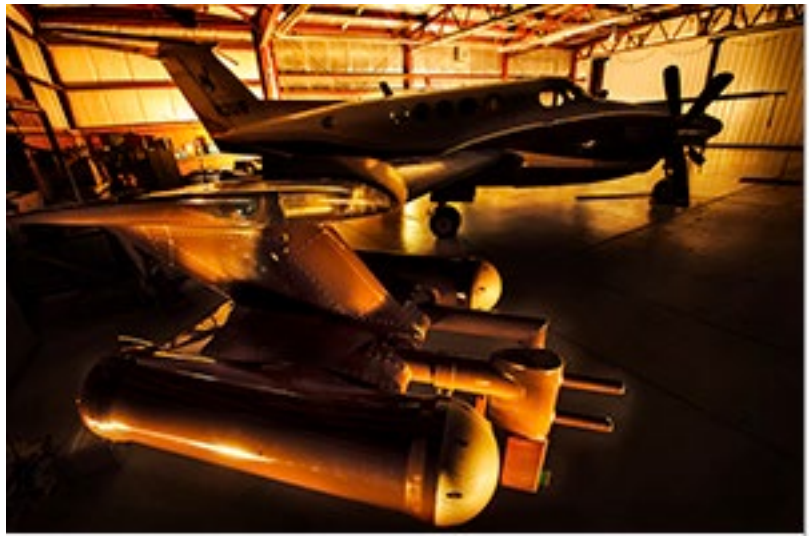
Mid-Scale RI-1: Results

- Received requests for $2.6 billion in 247 pre-proposals.



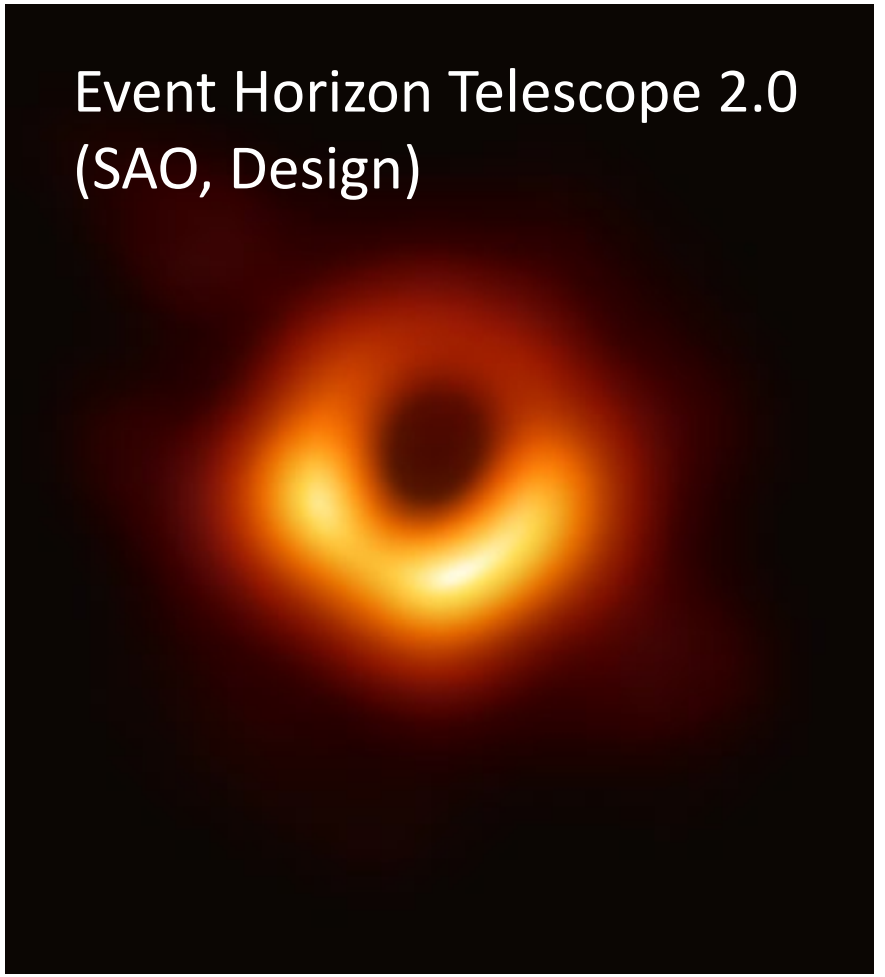
- Invited 42 full proposals.
- Funded 10 awards.

Some Mid-scale RI-1 Awards



Next-Gen
Atmospheric Research
Aircraft (U. Wyoming)

Event Horizon Telescope 2.0
(SAO, Design)



Neutron Spin-Echo
Spectrometer
(U. Delaware,
at NIST)

Mid-Scale RI-1: Lessons Learned

- Substantial pent-up demand, across all disciplines.
  - Pre-proposal step confirmed as the right approach.
- High demand for Design proposals, consistent with 2017 Request for Information.
- Expenditure of NSF staff time was significant.

Mid-Scale Research Infrastructure Track 2

- Track 2 (Mid-scale RI-2): $20-$70 million Implementation projects, funded from MREFC account.

- $45 million in FY 2020 Request.
  - House bill provides $45 million.
  - Senate bill provides $75 million.
  - Awaiting conference.

- Solicitation advertised $150 million in available funding.

- ~50 pre-proposals received.

Mid-scale RI-2 Selection Status

- March 2019. Pre-proposals received. Directorate-based external review.
- May 2019. Invitations issued for full proposals, due August 2.
- August-October 2019. Directorate-based external review of full proposals.
- November 2019. Reverse Site Visits, primarily to evaluate Project Execution Plans.

---------- We are here (Nov. 2019).

- Directorate recommendation for award consideration.
- Working Group identification of candidate portfolios.
- Internal NSF assessment of candidate portfolios.
- Recommendation to Director's Review Board (DRB) and then to Director.
- May 2020. Director recommends portfolio to NSB for award portfolio authorization.

Mid-scale RI-2 Award Authorization by NSB

- NSB award authorization for the portfolio.
  - Director's memo describing overall rationale for recommended portfolio, plus short (~1-page) description of each project.
  - Possible: Draft Review Analyses for each recommended award.

- Details of general NSB oversight process are in active discussion.

Backup Slide

Mid-scale RI-1 Portfolio (awarded Sept. 2019)

Prop	Topic	Type	Institution	$ Req
1935980	Event Horizon Telescope 2.0	Design	Smithsonian Astrophysical Obs.	$12,667,209
1935930	Next-Gen Atmospheric Research Aircraft	Implementation	U Wyoming	$15,743,561
1935913	1.2 GHz NMR	Implementation	Ohio State U	$17,577,202
1935892	Next-Gen CMB-S4 (Cosmic Microwave Background)	Design	U Chicago	$3,984,189
1935994	Compact X-ray Free-Electron Laser	Design	Arizona State U	$4,765,713
1935956	Neutron Spin Echo Spectrometer	Implementation	U Delaware	$11,802,857
1935966	Adaptive Programmable Networked Testbed	Implementation	UNC Chapel Hill	$19,980,601
1935950	Zettawatt-Equivalent Ultrashort Pulse Laser	Implementation	U Michigan	$19,860,788
1935885	Attosecond Soft X-ray Light Source	Implementation	Ohio State U	$9,936,928
1935984	SAGE: A Software Defined Sensor Network	Implementation	Northwestern U	$9,026,927