

**PROGRAM ACCOUNTS: RESEARCH AND RELATED  
ACTIVITIES (R&RA) AND EDUCATION AND HUMAN  
RESOURCES (EHR)**

**\$156,560,000  
+\$13,570,000 / 9.5%**

Funding from program accounts R&RA and EHR covers approximately 30 percent of the total Organizational Excellence portfolio. Three activities comprise program-funded Organizational Excellence: Intergovernmental Personnel Act costs, Program Related Administration, and Other Organizational Excellence Activities.

**R&RA, EHR, and MREFC Organizational Excellence Funding Summary**  
(Dollars in Millions)

	FY 2018 Actual	FY 2019 (TBD)	FY 2020 Request	Change over FY 2018 Actual	
				Amount	Percent
<b>IPA Costs</b>	<b>\$46.68</b>	-	<b>\$52.99</b>	<b>\$6.31</b>	<b>13.5%</b>
IPA Compensation	40.39	-	45.59	5.20	12.9%
IPA Lost Consulting & Per Diem	3.74	-	4.07	0.33	8.8%
IPA Travel	2.55	-	3.33	0.78	30.7%
<b>Program Related Administration</b>	<b>\$85.14</b>	-	<b>\$96.36</b>	<b>\$11.22</b>	<b>13.2%</b>
Program Related Technology	81.21	-	92.71	11.50	14.2%
Other Program Related Administration	3.93	-	3.65	-0.28	-7.1%
<b>Other Organizational Excellence Activities</b>	<b>\$11.17</b>	-	<b>\$7.21</b>	<b>-\$3.96</b>	<b>-35.5%</b>
Major Facilities Admin Reviews and Audits	0.74	-	0.36	-0.38	-51.4%
Evaluation and Assessment Capability (EAC)	2.99	-	3.00	0.01	0.4%
Public Access Initiative	3.50	-	1.75	-1.75	-50.0%
Planning and Policy Support	3.94	-	2.10	-1.84	-46.7%
<b>Total</b>	<b>\$142.99</b>	-	<b>\$156.56</b>	<b>\$13.57</b>	<b>9.5%</b>

**Intergovernmental Personnel Act (IPA) Costs**

A portion of NSF's workforce consists of temporary staff hired through the Intergovernmental Personnel Act (IPA) authority. IPAs remain employees of their home institution while serving at NSF during their temporary appointment. They are not paid directly by NSF and are not subject to federal pay, benefits, or other limitations. NSF reimburses their home institution without overhead. IPAs are eligible to receive relocation expenses or a per diem allowance in lieu of relocation. Per policy released October 2016, NSF is continuing its pilot to require 10 percent cost sharing by the IPA's home institution of the IPA's academic-year salary and fringe benefits.

The agency uses IPA science and engineering staff to help ensure that the Foundation's funding decisions are based on the best input from the field and reflect fresh ideas and creativity. The expertise provided by these IPAs is essential to help shape the NSF research portfolio and support transformational advances across the frontiers of all fields of science, engineering, and education.

**IPA Costs by Appropriation**  
(Dollars in Millions)

	FY 2018 Actual	FY 2019 (TBD)	FY 2020 Request	Change over FY 2018 Actual	
				Amount	Percent
IPA FTE Allocation	198	-	198	-	-
IPA FTE Usage (Actual/Projected) <sup>1</sup>	165	-	198	33	20.0%
<b>Research and Related Activities (R&amp;RA)</b>					
IPA Compensation	\$36.12	-	\$41.09	\$4.97	13.8%
IPA Per Diem	3.23	-	3.64	0.41	12.6%
Travel	2.35	-	3.08	0.73	31.2%
<b>Subtotal, R&amp;RA Costs</b>	<b>\$41.70</b>	<b>-</b>	<b>\$47.81</b>	<b>\$6.11</b>	<b>14.6%</b>
<b>Education and Human Resources (EHR)</b>					
IPA Compensation	4.27	-	4.50	0.23	5.4%
IPA Per Diem	0.51	-	0.43	-0.08	-15.4%
Travel	0.20	-	0.25	0.05	24.1%
<b>Subtotal, EHR Costs</b>	<b>\$4.98</b>	<b>-</b>	<b>\$5.18</b>	<b>\$0.20</b>	<b>4.0%</b>
<b>Total<sup>1</sup></b>	<b>\$46.68</b>	<b>-</b>	<b>\$52.99</b>	<b>\$6.31</b>	<b>13.5%</b>

<sup>1</sup> FY 2018 includes IPA FTE utilization and costs for approximately one IPA FTE in the Office of Budget Finance and Award Management. For FY 2020, an IPA FTE usage of approximately 11 is included in the table above but the cost is budgeted within Other Program Administration and included in the General Planning and Evaluation (P&E) activities section of this narrative.

The FY 2020 funding for IPA costs is \$52.99 million representing an IPA usage level of 198 FTE. This is the IPA FTE planning level used internally for allocations. In FY 2020, NSF is returning to prior practice of showing this IPA FTE planning level in the budget request rather than reflecting a number closer to the prior year utilization as was done uniquely in FY 2019. R&RA funding for IPAs is \$47.81 million supporting 159 IPA FTE. EHR funding for IPAs is \$5.18 million supporting 28 IPA FTE. For both R&RA and EHR, per IPA FTE costs are estimated at a level commensurate with the FY 2018 Actual.

The FY 2020 total IPA compensation is \$45.59 million, per diem is \$4.07 million, and travel is \$3.33 million. Funding for these three categories is associated with full use of NSF's existing IPA FTE allocation and projected IPA costs for FY 2020. Costs increases are estimated based on projected IPA FTE utilization, current IPA funding, and the need to provide competitive salaries in order to recruit the best researchers in the science, technology, engineering, and mathematic fields.

### Program Related Administration

**Program Related Administration Investments**  
(Dollars in Millions)

	FY 2018 Actual	FY 2019 (TBD)	FY 2020 Request	Change over FY 2018 Actual	
				Amount	Percent
Program Related Technology	\$81.21	-	\$92.71	\$11.50	14.2%
Other Program Related Administration	3.93	-	3.65	-0.28	-7.1%
<b>Total</b>	<b>\$85.14</b>	<b>-</b>	<b>\$96.36</b>	<b>\$11.22</b>	<b>13.2%</b>

The FY 2020 Request for Program Related Administration (PRA) is \$96.36 million. PRA includes two

categories of activities that support NSF’s strategic goal, Enhance NSF’s performance of its mission,<sup>1</sup> and that are directly funded from NSF’s program accounts:

- Program Related Technology (PRT); and
- Other Program Related Administration (Other PRA)

Program Related Technology (\$92.71 million)

Information technology (IT) investments funded through the R&RA and EHR accounts support NSF’s mission activities and is approximately 79 percent of NSF’s total IT investment portfolio. These programmatic investments are called Program Related Technology (PRT). NSF’s FY 2020 level for PRT is \$92.71 million. The remaining \$24.29 million IT investment is funded through the AOAM account and is discussed in the AOAM chapter.

**Program Related Technology Investments**

(Dollars in Millions)

	FY 2018 Actual	FY 2019 (TBD)	FY 2020 Request	Change over FY 2018 Actual	
				Amount	Percent
Mission-Related Applications and Services	\$53.26	-	\$59.42	\$6.16	11.6%
Mission-Related IT Operations and Infrastructure	21.53	-	25.84	4.31	20.0%
Mission-Related Security and Privacy Services	4.18	-	5.22	1.04	24.9%
Mission-Related IT Management	2.24	-	2.24	-	-
<b>Total</b>	<b>\$81.21</b>	<b>-</b>	<b>\$92.71</b>	<b>\$11.50</b>	<b>14.2%</b>

NSF accomplishes its mission by providing federal financial assistance to individuals and institutions whose proposals have been judged the most promising by a rigorous and objective review process. Each stage in the NSF proposal and award management process is supported electronically. The IT services and systems that support the proposal and review process are funded through the PRT investment, an essential element in our Nation’s support for science, engineering, and education research.

For FY 2020, NSF’s information technology priorities for PRT are strategically aligned with the President’s Management Agenda (PMA) and will:

- Support the Agency’s commitment to “Renewing NSF” with a broad focus on implementing and scaling solutions that will further PMA priorities. This investment will allow NSF to:
  - Accelerate necessary technology transformations geared toward improving the user experience both internally and for citizen-facing services. (Cross-Agency Priority (CAP) goal 4: Improving customer experience with federal services)
  - Support continued exploration of advanced technologies such as artificial intelligence (AI) and blockchain to support NSF’s mission. (CAP goal 1: Modernize IT to increase productivity and security)
  - Employ innovative and advanced technology capabilities to transform the agency’s workforce and amplify human performance. (CAP goal 3: Developing a workforce for the 21<sup>st</sup> century)
- Maintain the security of NSF’s infrastructure to respond to the ever-evolving threat landscape. (CAP goal 1: Modernize IT to increase productivity and security)
- Support the continued operation of iTRAK, the Foundation’s financial management system, to ensure continued interoperability with NSF’s core financial functions. (CAP goal 2: Leveraging data as a strategic asset)
- Support the Financial Services Support investment, distinct from the iTRAK investment which supports core financials, to modernize NSF’s financial management functions thereby increasing transparency

<sup>1</sup> NSF (2018). Building the Future: Investing in Discovery and Innovation – NSF Strategic Plan for Fiscal Years (FY) 2018-2022. Retrieved from: [www.nsf.gov/about/performance/strategic\\_plan.jsp](http://www.nsf.gov/about/performance/strategic_plan.jsp)

and accuracy of reporting between NSF's core financial system (iTRAK) and other mission systems. (CAP goal 2: Leveraging data as a strategic asset)

- Support continued use and refinement of the Technology Business Management (TBM) framework for managing IT as a business. (CAP Goal 10: Improving outcomes through federal IT spending transparency)

*Mission-Related Applications and Services (\$59.42 million)*

Investments in this category fund the applications and services that support the merit review process, including pre-proposal planning; receipt of proposals; processing proposals; reviewing proposals; award decisions, documentation, and notification; funding awards; post-award oversight; dissemination of award results; and award close-out. These investments can be classified as:

- Mission Support Systems, a total of \$45.02 million, which supports the following activities:
  - \$24.45 million funds the operations and maintenance of NSF's mission support systems, which provide a suite of functionality supporting each stage in the NSF proposal and award management process. Work in this area incorporates ongoing needs for modernized functionality as it is incrementally deployed for production use.
  - \$20.57 million for continuous modernization of systems and services that support the merit review process, such as:
    - Proposal Management Efficiencies (\$13.71 million), prioritizing continuous modernization of citizen-facing services and data cleanup activities, enabling down-stream data analytics and opportunity for continued insertion of advanced technologies (such as AI) to enhance the merit review process. (CAP goals 1 and 4)
    - Public Access (\$1.37 million) to enable the NSF Public Access Repository (NSF-PAR) to function as a controlled platform for integration with third-party services, leveraging application programming interfaces that support machine-to-machine communication to enhance use and discovery and reduce burden on the research community. (CAP goals 1, 2, and 4)
    - NSF.gov Content Management System modernization (\$1.83 million) targeted for completion in FY 2020, improving content management for the citizen-facing NSF.gov website. (CAP goal 4)
    - \$3.66 million for "Make IT Work for Us", accelerating integration of AI tools into the renewed merit review process. Specifically, NSF will work to consolidate and integrate functionality intended to reduce the burden on the user through the practical application of cutting-edge technologies such as AI and machine learning. In addition, NSF will leverage AI and machine learning to transform the agency's workforce, in parallel with technology transformations, ensuring the workforce remains relevant and has the necessary skillsets to evolve and meet the agency's future needs. (CAP goals 3 and 4)
- NSF's Data Management and Delivery investment, \$6.13 million, centralizes and streamlines access to NSF data for agency staff, and provides analytical and visualization capabilities key to data-based decision making. NSF will prioritize efforts that continue to leverage AI and to evolve and mature data management and delivery capabilities that enable data-based policy making. (CAP goal 2)
- Funding for operations and maintenance of NSF's core financial system, iTRAK. The total FY 2020 investment for iTRAK is \$7.90 million. Seventy percent of this request, \$5.53 million, is funded by PRT and 30 percent is funded by AOAM. (CAP goal 2)
- Financial services support, \$2.74 million, will enable account code structure modernization, largely impacting business mission-systems interfacing with iTRAK. (CAP goal 2)

*Mission-Related IT Operations and Infrastructure (\$25.84 million)*

Investments in this category provide funding for operations and maintenance, as well as continuous modernization, of NSF's infrastructure, network, and telecommunications requirements. The FY 2020 level

rebalances the IT Portfolio to reflect investments in innovation focused on mission-related IT investments. Funding in this category will allow the agency to continue supporting technology transformations essential to taking advantage of increased cloud, platform and shared service offerings, enabling the agency to remain flexible to adapt to increasing demands. Investments, supporting CAP goals 1 and 10, include:

- Network (\$8.11 million) - includes NSF's single network, with wired and Wi-Fi connectivity for NSF staff and visitors, and virtual meeting support.
- Data Center and Cloud (\$4.47 million) - includes the resources necessary to support and monitor access to applications that enable execution of NSF's mission.
- End User (\$5.49 million) - funds NSF's help desk services for internal users (NSF staff) and external users (the research community including institutions, principal investigators, reviewers, and NSF visitors), which are available 13 hours per day, five days per week; and, expanded automation and integration of the customer relationship management tool with asset and application management.
- Platform (\$7.77 million) - reflecting NSF's use, management, and acquisition of hyper-converged hardware, software, and services. This funding level provides for optimal use and enables flexibility to meet NSF's evolving needs.

*Mission-Related Security and Privacy Services (\$5.22 million)*

Investments in this category include automated configuration management tools that manage security patches and provide proactive protection from viruses, spyware, and other threats. This investment covers the mission-related portion of NSF's network security, application security, security control testing and tools, automated vulnerability assessment tools, and remediation and intrusion detection services.

The FY 2020 Request level will support operations and monitoring support for the Continuous Diagnostics and Monitoring (CDM) tools implemented thus far—including costs for tools and services received in Phases 1 and 2 of the CDM program—and to exploit the full capabilities of CDM offerings, enabling risk-based prioritization of the most significant cybersecurity improvements. (CAP goal 1)

*Mission Related IT Management (\$2.24 million)*

IT Management includes support for the Chief Information Officer and senior IT leadership in the areas of IT strategy and planning, enterprise architecture, capital planning, vendor management, IT budget/finance, and IT strategic communications. In FY 2020, investments in this category will support continued use and refinement of the TBM framework, further enhancing the agency's ability to manage IT as a business. (CAP goal 10)

Other Program Related Administration (\$3.65 million)

In FY 2020, \$3.65 million for NSF's Other PRA includes funding for two Foundation-wide activities:

- NSF support for federal E-Government initiatives that are mission-related; and
- General planning and evaluation activities that are Foundation-wide.

**Other Program Related Administration**

(Dollars in Millions)

	FY 2018 Actual	FY 2019 (TBD)	FY 2020 Request	Change over FY 2018 Actual	
				Amount	Percent
Proposal Management Efficiencies <sup>1</sup>	\$1.33	-	-	-\$1.33	-100.0%
E-Government Initiatives	1.46	-	1.33	-0.13	-8.6%
General Planning and Evaluation Activities	1.14	-	2.32	1.18	103.3%
<b>Total</b>	<b>\$3.93</b>	<b>-</b>	<b>\$3.65</b>	<b>-\$0.28</b>	<b>-7.1%</b>

<sup>1</sup> In FY 2019 Proposal Management Efficiencies moves from a line item under Other Program Related Administration to be part of Planning and Policy Support in the Integrative Activities (IA) budget activity.

*E-Government Initiatives (\$1.33 million)*

The FY 2020 funding level for NSF program-supported and mission-related E-Government initiatives is consistent with the FY 2020 funding amounts provided by the initiatives' respective managing partners. The FY 2020 funding level reflects changes for the following initiatives:

- The Integrated Award Environment initiative decreases approximately 27 percent based upon FY 2017 transaction data and the agreed upon funding algorithm;
- Grants.gov increases approximately 39 percent reflecting changes to the Grants.gov funding algorithm used to determine agency contributions and a built-in inflation rate of 2 percent.

*General Planning and Evaluation Activities (\$2.32 million)*

FY 2020 funding for general planning and evaluation activities supports investments on broad programmatic and policy matters of NSF-wide scope and benefit. This includes activities such as the verification and validation of performance information; approximately 11 IPA FTE in the office of Budget Finance and Award Management and the Office of the Director; and certain costs associated with the American Association for the Advancement of Science fellowships program. Also included is \$104,020 for interagency management councils that support cross-agency management reforms and efficiencies, \$91,782 for Cross-agency Priority (CAP) Goals, and \$151,162 for the Department of State's Capital Security Cost Sharing (CSCS) and Maintenance Cost Sharing (MCS) programs. The FY 2020 funding level is based on the level of general planning and evaluation activities and projects that occurred in FY 2018 and anticipated activities for FY 2020.

**Other Organizational Excellence Activities**

**Other Organizational Excellence Activities**

(Dollars in Millions)

	FY 2018 Actual	FY 2019 (TBD)	FY 2020 Request	Change over FY 2018 Actual	
				Amount	Percent
Major Facilities Admin Reviews and Audits	\$0.74	-	\$0.36	-\$0.38	-51.4%
Evaluation and Assessment Capability (EAC)	2.99	-	3.00	0.01	0.4%
Public Access Initiative	3.50	-	1.75	-1.75	-50.0%
Planning and Policy Support	3.94	-	2.10	-1.84	-46.7%
<b>Total</b>	<b>\$11.17</b>	<b>-</b>	<b>\$7.21</b>	<b>-\$3.96</b>	<b>-35.5%</b>

*Major Facilities Administrative Reviews and Audits (\$360,000)*

The projected administrative reviews and audits for major facilities to be funded via the R&RA account total \$360,000 for FY 2020. This plan is based on the Annual Major Facilities Portfolio Risk Assessment conducted jointly by the Office of Budget, Finance, and Award Management in close coordination with Program. Besides risk, this assessment also considers event-driven oversight activities per CSB policy, which are based on American Innovation and Competitiveness Act (AICA) requirements as well as prior agreements with the Office of the Inspector General on the thresholds and frequency of certain audit activities.

*Evaluation and Assessment Capability (EAC) (\$3.0 million)*

EAC is an integral part of NSF's operations. It supports, coordinates, and conducts NSF-wide program evaluations and evidence generation and utilization to catalyze learning and improvement through collaboration with NSF's directorates and offices. More detailed information on EAC can be found within the IA narrative in the R&RA chapter.

*Public Access Initiative (\$1.75 million)*

The NSF Public Access Initiative seeks to make the results of NSF-funded research available to the greatest extent possible, pursuant to the memorandum on *Increasing Access to the Results of Federally Funded Scientific Research*, released by the Office of Science and Technology Policy (OSTP) on February 22, 2013, and consistent with NSF's mission and long-standing policies supporting data sharing. It will enable greater transparency and more access by more people to the results of NSF-funded research, and will provide for secure, predictable, and integrated management of publications, data, and other research products resulting from NSF funding.

*Planning and Policy Support (\$2.10 million)*

Planning and Policy Support is a foundation-wide activity in the IA budget that supports select NSF-wide policy and planning activities. More detailed information on Planning and Policy Support can be found within the IA narrative in the R&RA chapter.

