IBM Center for The Business of Government

Reducing Administrative Burden in Federal Research Grants to Universities

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TABLE OF CONTENTS

FOREWORD

On behalf of the IBM Center for The Business of Government, we are pleased to present this report, *Reducing Administrative Burden in Federal Research Grants to Universities,* by Lisa Mosley, Yale University; Jeremy Forsberg, The University of Texas at Arlington; and David Ngo, The New School.

This report analyzes the regulatory and policy requirements that govern the management of federal funds invested in research and the inefficiencies often generated in the form of administrative burden and cost. It examines this complex ecosystem of multiple stakeholders from the perspective of the grant recipient.

DANIEL J. CHENOK

The authors focus on the financial and programmatic compliance requirements of managing grants at universities, with the understanding that at a foundational level, the ethical conduct and integrity of conducting research is critical to the success of the U.S. federal government's $42 billion annual research and development investment with universities. However, the emphasis on procedural accountability is increasingly undermining the ability of academic researchers to focus their attention on conducting the research itself. The authors report that researchers spend 44 percent of their research time performing administrative tasks many of which derive from federal mandates.

MICHAEL KING

This report draws from the three authors' multiple decades of experience managing federally funded projects, implementing university policies and procedures to comply with federal regulations, overseeing federal audit engagements, and participating in various professional organizations in an attempt to reduce regulatory burden and promote efficient practices.

The recommendations included in this report will require focused attention from a wide range of stakeholders—the Office of Management and Budget, federal agencies, universities, faculty that perform research, and the audit community—and are intended to:

- Reduce overall costs of research for federal agencies and universities.
- Redirect costs and time of researcher activities spent on administrative tasks towards the conduct of research.
- Redirect oversight costs, resources, and activities of researchers, universities, federal agencies towards research quality and performance.
- Redirect audit practices to focus on value-added tasks that improve research performance and outcomes—the efficient and effective use of funds rather than "paperwork" accountability.

While this report is targeted to federal and university leaders, the issues raised in this report are also being experienced by the broader grant recipient community of states, localities, and nonprofits. As a result, we hope the insights and recommendations help inform a broader discussion and action on these issues.

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EXECUTIVE SUMMARY

The federal government invested about $42 billion in research and development activities at research universities in 2018. However, a large and growing portion of these funds are spent on administrative tasks related to research rather than the research itself.

A 2018 survey of university academic researchers revealed that they spend 44 percent of their research time on administrative tasks. Many of these tasks are mandated by federal requirements.

In addition, since 1991, federal requirements limit universities to a reimbursement rate of 26 percent for their administrative costs, even though the federal government has imposed 110 new regulatory requirements upon research grant recipients between 1991 and 2018. Partly because of this increase in federal mandates, and the federal cap on reimbursements for administrative costs, universities have had to contribute their own limited resources of an estimated $7 billion between 2010 and 2017. In sum, for every additional federal research dollar received, universities incur additional costs.

There are many different stakeholders in the federal research grant system, each with different priorities—the Office of Management and Budget (OMB); the National Science Foundation (NSF) and the National Institutes of Health (NIH), both federal grantmaking agencies; the universities that receive grants; the audit community including the Office of Inspectors General; and the researchers within each university who perform the research. This report is written from the perspective of the grant recipients. It highlights how governmentwide federal regulations, agency-specific policies, the oversight approaches taken by the audit community, and a grant recipient's own university's policies cumulatively have unintended consequences of focusing researchers' efforts on paperwork compliance and administrative requirements in lieu of the performance of research.

This report is a synthesis of the experiences of the authors as well as studies undertaken over the past six decades. Its recommendations are based on the activities and experiences of the two largest university grant makers for basic research—the National Science Foundation and the National Institutes for Health. It identifies selected opportunities for improving the federal research grant ecosystem at each of the major stages of the research grant lifecycle.

Reducing Burden at the Proposal Stage

The proposal stage is when a researcher prepares and submits a proposal for funding according to the differing instructions and forms of each federal agency. Researchers typically spend 38 days preparing a proposal, but in fiscal year 2018, only 24 percent of NSF grant proposals were funded. It was even less for NIH grants. This process takes a tremendous use of researcher, university, and federal agency resources for a low return on their investment.

Recommendation One: The Office of Management and Budget should consider directing major federal grant funding agencies to implement a standardized pre-proposal format.

Recommendation Two: The interagency Coordinating Administrative Requirements for Research (CARR)[1] committee, charted by the National Science & Technology Joint Committee on the Research Environment, should explore the option of developing a standardized pre-proposal format and determine the set of more detailed documents that could be submitted "just-in-time"—that is, after a selection decision but before the award is made.

Recommendation Three: The CARR committee should consider developing an abbreviated, standardized biosketch format to facilitate peer reviewers being able to assess the expertise of the key members of the research team.

Recommendation Four: The CARR committee should make recommendations to shorten the timeline between pre-proposal submission, full proposal submission, and award.

Reducing Burden at the Award Stage

The award stage in the research grant lifecycle is where a proposal is reviewed and selected. This stage can take anywhere from four to nine months to complete from time of proposal submission. Upon award, each grantmaking agency has its own administrative requirements and approach towards the implementation of the cross-government OMB Uniform Guidance for grants administration that are incorporated into an award.

Recommendation Five: OMB should consider directing all research grantmaking federal agencies to use the just-in-time process to collect information at the award stage that is not critical to the peer review process during the proposal stage.

Recommendation Six: OMB should consider directing all research grantmaking federal agencies to adopt usage of the standard research terms and conditions unless prohibited by statute or they add burden to the requirements of awardees.

Reducing Burden at the Post-Award Management Stage

The research is performed during this stage of the cycle. A typical project can last anywhere from one to five years. The Uniform Guidance is a set of regulations universities must follow when using federal funds and are intended to provide flexibility in administrative requirements and consistency in their interpretation between grantmaking agencies, universities, and the oversight (audit) community. This consistency is intended to improve efficiency, reduce administrative burden, and harmonize auditor interpretation of the regulations.

During this stage, grant recipients must also report on their progress and financial expenditures. Reporting frequency and level of detail can vary. NSF and NIH require progress reports annually for each project. Financial reporting is more frequent and onerous, especially when universities must complete Federal Cash Transaction Reports (FCTR) for each individual project in which they draw down funds from the federal payment system instead of a simple total for all projects at a university.

1. The Coordinating Administrative Requirements for Research committee was previously known as the Research Business Models (RBM) Working Group. Despite the change in name, their focus remains the same.

Recommendation Seven: The CARR committee should issue a report that communicates a consistent implementation and interpretation of the Uniform Guidance and reinforce a focus on accountability of performance over accounting (paperwork) compliance. In particular, the report should address provisions related to the allowability of alternatives to time-or-effort reporting.

Recommendation Eight: The CARR committee should recommend eliminating the use of Federal Cash Transaction Reports (FCTRs) for all grant awards that are drawn from the Department of the Treasury using the sub-accounting methodology (by individual project).

Recommendation Nine: OMB should consider amending the Uniform Guidance to require all federal grantmaking agencies to issue fixed amount research grant awards of at least $250,000 or less annually in direct costs plus associated facilities and administrative costs. These types of awards would eliminate most of the administrative and financial requirements of the Uniform Guidance, along with their oversight costs and burden, and instead put a focus on successful delivery of research performance and outcomes.

Cross-Cutting Recommendations to Address Systemic Issues Related to Administrative Burden in the Federal Research Grant Ecosystem

A number of administrative burdens reach across the research grant ecosystem and involve different stakeholders. Following are selected recommendations for further action:

Recommendation Ten: OMB should consider playing a prominent role in setting goals, establishing deadlines, and ensuring that agencies have valid business reasons to deviate from adopting a standardized approach to grants management that results in more than minimum requirements among federal grantmaking agencies. If approved by OMB, these business reasons should be made publicly available and include steps, if applicable, being taken by the agency to align with other federal agencies.

Recommendation Eleven: The audit community, especially federal inspectors general, should explore ways to become more engaged with university representatives and faculty researchers in order to rebalance its oversight and value towards the efficiency and effectiveness of research performance. This could include the identification of accounting practices, issuance of guidance that promotes consistency in regulatory interpretations among stakeholders, and business processes that reduce burden and institutional costs of conducting federal research.

Recommendation Twelve: The audit community, especially federal inspectors general, should explore options for making distinctions between administrative noncompliance (unsigned paperwork for example) and fraud (intent to misrepresent for financial gain) in investigations. Any administrative noncompliance identified in an investigation should have the same recourse and process as an audit and go through a resolution process with the federal agency. This shift would require a new approach in audit community training and resources and emphasize fact gathering and information assessment that (1) can be performed in a way that retains auditor independence, and (2) recognizes that some level of risk tolerance can help optimize efficiency and effectiveness.

Recommendation Thirteen: The federal inspector general community, via the Council of the Inspectors General on Integrity and Efficiency, should explore ways to implement recommendations originally made in a 2016 report by the National Academies of Sciences, Engineering and Medicine (NAS), to resolve issues regarding their inconsistent interpretation of agency policies and priorities with the agency before conducting formal audits of research universities. They should also use a risk-based methodology to identify universities as candidates for audits. The NAS report also offers other recommendations the inspector general community should consider. This includes an expanded and more transparent approach they use to report to Congress.

Recommendation Fourteen: Universities should review their own business practices to ensure each control is necessary, effective, and efficient. Internal audit offices and university administration should evaluate the costs of controls to ensure they do not outweigh their intended benefits recognizing that some level of risk tolerance can help optimize efficiency and effectiveness.

Recommendation Fifteen: OMB should consider establishing the statutorily-mandated Research Policy Board to assess the administrative burdens in the federal research grants ecosystem and develop a long-term agenda for improvement by engaging all stakeholders.

Why Is It Important to Address Administrative Burden?

The authors believe that federal grant dollars are increasingly being diverted to administrative or compliance tasks required by the federal government or self-imposed by universities themselves based on their concerns of potentially adverse audit reports. While many of these requirements are intended to increase accountability, many of these tasks do not improve the quality or quantity of the research performed. They further state that this shift in the long run may potentially reduce U.S. competitiveness in the global market for innovation and research.

An Overview of the Federal Research Enterprise

The federal government and American universities have a long-standing partnership in research and development that has been essential to the discovery and advancement of research leading to new technologies. According to a former director of the American Association for the Advancement of Science (AAAS), research is "the primary source of the new knowledge that ultimately drives the innovation process."[2] This relationship is vital to America's long-term national interests such as health, energy, the environment, economic prosperity, and national security.

However, over the last several decades, this research enterprise has become bogged down in a cumulation of regulations that has created an accountability model based on compliance-oriented paperwork versus a model focused on performance outcomes. This has resulted in additional costs and reduced research productivity. In addition, this enterprise model is incredibly complex and requires the active engagement of multiple stakeholders over a period of years in order to enact any meaningful and significant change to return a focus on research outcomes.

To date, efforts to shift the focus of accountability toward research performance outcomes has largely failed. There have been many attempts to streamline requirements by governing bodies, professional organizations, and grant recipients but they have achieved limited success to improve cost efficiency and performance outcomes. Moreover, even minor improvements have often taken years to be realized.

The authors of this report see an urgent need for a critical review of the federal research enterprise as a whole to identify changes that can be realized in the short term and accountability efforts shifted that add value to research and performance outcomes.

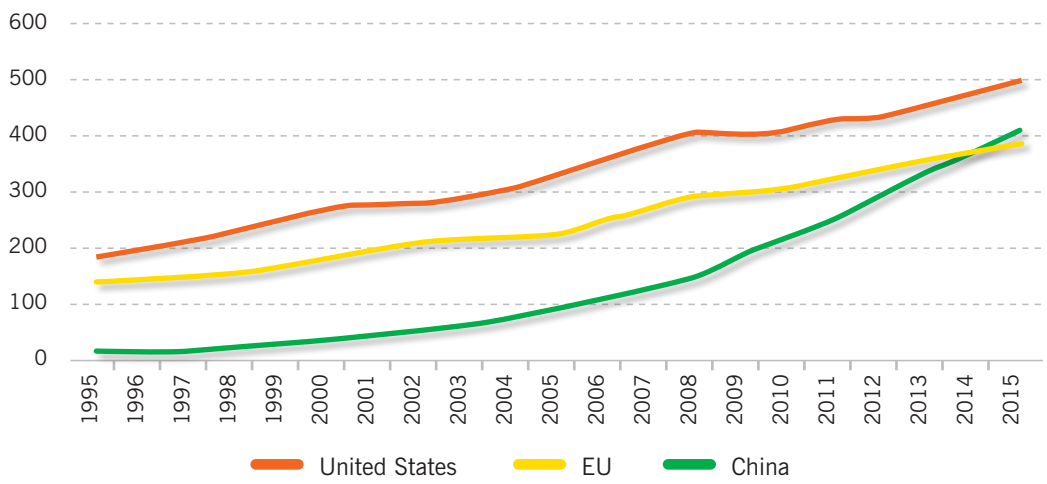
U.S. Research Investments Are Declining as a Global Share

The U.S. has long led the world in research and development (R&D) investments that have resulted in major advances in innovation and economic prosperity. According to the National Science Board's *Science and Engineering Indicators 2018 Digest,*[3] "The United States remained the largest R&D-performing country in 2015, with gross domestic expenditures on R&D of $497 billion, a 26 percent share of the global total, and an R&D-to-GDP ratio of 2.7 percent." This includes both public and private sector spending.

However, the report continues, "The U.S. share of worldwide R&D was notably higher in 2000 (37 percent) than in 2015 (26 percent), continuing to decline over this 15-year period." China was a decisive second in 2015, with R&D expenditures of $409 billion, a 21 percent global share, and an R&D-to-GDP ratio of 2.1 percent." The National Science Board (NSB) predicts China will soon surpass the U.S. in research investments in the near future.[4]

2. Nelson, S. (1987). "Federal Funding for Academic Research." Retrieved from: https://education.stateuniversity.com/pages/1987/Federal-Funding-Academic-Research.html on May 31, 2019.
3. National Science Board. 2018. Science and Engineering Indicators 2018. NSB-2018-1. Alexandria, VA: National Science Foundation. Available at https://www.nsf.gov/statistics/indicators/.
4. National Science Board, 2018. "The Rise of China in Science and Engineering." Available at: https://nsf.gov/nsb/sei/one-pagers/China-2018.pdf.

Figure 1: Gross Domestic R&D Expenditures (in billions)



Source(s): National Science Foundation, National Center for Science and Engineering Statistics, National Patterns of R&D Resources (annual series); Organization for Economic Co-operation and Development, Main Science and Technology Indicators (2017/1); United Nations Educational, Scientific and Cultural Organization Institute for Statistics Data Centre, data.uis.unesco.org, accessed 13 October 2017. See Appendix Table 4–12.

Science and Engineering Indicators 2018

The NSB report also indicates that American universities were the primary performers of U.S. basic research in 2015 and the U.S. federal government the primary funder. Specifically, the federal government invested more than $42 billion in R&D activities at academic research universities in 2018, according to the National Science Foundation.[5]

Federal Regulatory Requirements Are Increasing

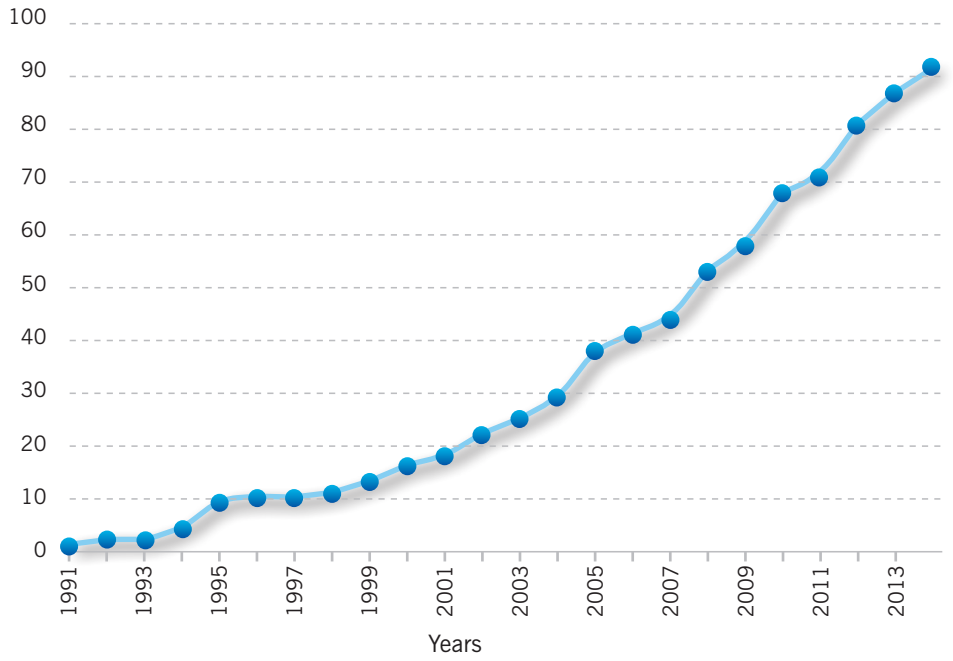
While federal spending on R&D is steadily increasing, what is not clear is the effectiveness of each dollar spent and whether it is used for the actual conduct of research or diverted to the administrative or regulatory compliance tasks required by the federal government that may not improve quality or quantity of the research performed.

As the relationship between federal grantmaking agencies and universities has evolved, so has the complexity of administrative and financial compliance requirements for grants management. Each federal grantmaking agency has a separate mission, may be governed by different statutes, and has its own policies and processes. The different nuances—as well as sometimes distinct variances of the requirements for proposal submission, award management, and financial reporting within and between federal grantmaking agencies—add to the growing administrative burden of grants management for both federal agencies and grant recipients. This burden often results in increasing the cost to perform research and diverting experts from performing the research itself.

5. National Science Foundation, National Center for Science and Engineering Statistics, "Higher Education R&D" series based on national survey data. https://ncsesdata.nsf.gov/herd/2018/html/herd18-dt-tab001.html on January 24, 2020..

According to data compiled by the Council on Governmental Relations (COGR), between 1991 and 2018, there have been 110 new regulatory requirements that impact a university's cost to perform research while potentially increasing faculty burden to address these additional regulations (Figure 2).[6] While there is no empirical data available to indicate which regulatory change introduced the most burden, the sheer volume of this increase is staggering and undoubtedly has an impact on university costs and procedures that result in more administrative tasks for faculty.

Figure 2: Number of Regulatory Requirements, 1991-2013



Source: *Optimizing the Nation's Investment in Academic Research: A New Regulatory Framework for the 21st Century,* The National Academies of Sciences, Engineering and Medicine, July 2016. Cumulative number of regulatory changes applicable to research institutions (since 1991). Courtesy of the Federal of American Societies for Experimental Biology 2015. Based upon data compiled by the Council on Government Relations.

In addition, it is unclear whether these new regulations have had their intended effect of improving the nation's research enterprise for higher quality research outcomes or improving cost efficiency. Instead, regulations are most commonly evaluated in terms of how compliant an organization is to the regulation.

Total Cost to Conduct Federal Research Is Increasing and Universities Are Paying for It

The total cost for conducting research consists of:

- **Direct Costs.** Costs directly associated to the research performed such as researcher salary, instruments, laboratory supplies, etc.

6. Of note, there were many regulations affecting grants management prior to 1991. Figure 2 does not imply the absence of regulations before 1991. Figure 2 only reflects regulations through 2013.

- **Facilities and Administrative Costs (F&A).** Project costs incurred by the university to support scientific infrastructure (facilities) such as utilities, equipment maintenance, property insurance, library, etc., and operations (administrative) for regulatory compliance such as financial, personnel, data, and technology management and systems, etc.

Universities negotiate an F&A cost rate agreement with the federal government to set the percent of F&A costs it can recover (the F&A percentage is applied to Modified Total Direct Costs) to conduct federally funded research.

However, in parallel to the increase in regulations since 1991, the Office of Management and Budget capped the administrative portion of a university's F&A agreement to not exceed 26 percent. As a result, the administrative costs borne by universities for research grants often exceed this artificial cap (aka their "fully burdened F&A rate"), thereby increasing a university's portion of the cost to perform research. For 2007, the Government Accountability Office (GAO) reported 83 percent of universities exceeded the administrative cap by an average of five percent.[7] These are research related costs incurred by the university that are not reimbursed. It should be noted that private industry does not have an administrative cap imposed on them and they can recover not only their full administrative costs but also add a fee for profit to charge the federal government to conduct research.

Although not a direct correlation, one could reasonably expect an increase in university-supported research expenditures as a result, in part, to help cover the costs of the increase in unfunded federal mandates and the limitation to recover its costs through F&A. The 2017 National Science Foundation (NSF) "Higher Education Research and Development (HERD) Survey" captured this trend in its survey of universities that received federal research funding. Between fiscal years 2010 to 2017, university-supported research expenditures as a percentage of total research expenditures had increased from 19 percent to 25 percent or, in total dollars, a $7 billion increase in university-supported research costs.

As a consequence, for every federal dollar invested in research there is a significant portion of additional financial costs incurred by universities performing research—as well as the increased administrative burden borne by a university and its researchers.

Increasing Regulatory Requirements Are Diverting Resources from Research

To help identify the amount of administrative burden regulations and federal mandates placed on researchers, the Federal Demonstration Partnership (FDP)[8] performed workload surveys at three different time points— 2005,[9] 2012,[10] and 2018[11]—of principal investigators who direct federally-funded research projects. Results from the 2005 and 2012 surveys indicated that principle investigators spend, on average, 42 percent of their research time on administrative tasks related to the research itself. The 2018 FDP survey reveals an increase to 44 percent of their research time spent on administrative tasks.

7. 2010 GAO Report 10-937, "Policies for the Reimbursement of Indirect Costs Need to Be Updated."
8. The Federal Demonstration Partnership (FDP) is a cooperative of federal agencies and research universities (e.g., administrators and faculty participants) that work together to identify solutions for reducing administrative burden in grants management and develop and then implement pilot projects to demonstrate its effectiveness and impact. This model has been successful partly because it allows both federal agencies and grant recipients to 'test' a new business process or policy prior to making official changes.
9. Available at: http://thefdp.org/default/assets/File/Documents/fws_2007_rpt_complete.pdf.
10. Available at: http://thefdp.org/default/assets/File/Documents/fws_2012_final_rpt.pdf.
11. Available at: http://thefdp.org/default/assets/File/Presentations/FDP%20FWS3%20Results%20Plenary%20Jan19%20fnl.pdf.

Although some level of administrative tasks to perform research is required, the experience of the authors suggests that this increased administrative workload is disproportionate to the goals of accountability in managing federal funds because it diverts resources and researcher time away from performance-based outcomes while increasing overall costs of all U.S. research.

Following is an illustration of a generalized grant scenario (researcher salary and lab supplies) for how a federal dollar is spent on research:

- The average F&A rate of the top 20 universities that spend federal funding[12] is 58 percent of Modified Total Direct Costs (MTDC).[13]
- For $1.00 spent, this provides $.63 cents in direct costs ($1.00 divided by 1.58) and $.37 for F&A costs ($.63 X 58 percent = $.37).
- Of the $.63 in direct costs, it is estimated that 80 percent of grant expenditures are attributed to salary and associated fringe benefits ($.63 X 80 percent = $.50) or $.50 in salary and $.13 in other direct costs (e.g., laboratory supplies).
- As noted earlier, researchers spend 44 percent of their research time on administrative tasks related to research ($.50 X 44 percent = $.22) or $.22 in salary for administrative tasks.
- This leaves only $.41 of each dollar to be spent directly on research—$.28 in salary and $.13 in other direct costs. The remaining $.59 is spent on regulatory burden, facilities, and administrative costs.

Figure 3: A Breakdown of Costs of Federal Investment in Research

	Direct	F&A (58%)	Total
Salary—Administrative Tasks (44% of Total Salary	0.22	0.13	$0.35
Salary—Research Tasks	**0.28**	0.16	$0.44
Other Direct Research Costs	**0.14**	0.08	$0.22
Total Cost	**0.63**	**0.37**	**$1.00**

Note: the numbers highlighted in Orange and those highlighted in Blue sum to the totals used in the pie chart).

Source: Illustrative example developed by authors

12. NSF HERD Survey Data of federal research expenditures and institution's active federal indirect rate agreement.
13. MTDC excludes Facilities & Administrative costs being charged from certain cost categories, such as capital equipment, participant support, patient care costs, and subawards once the cost exceeds $25,000.

In this scenario, the F&A costs of $.37 are real costs incurred by the university to maintain facilities, instrumentation, and cover a variety of administrative costs to support the research and compliance to regulatory requirements.[14] The whole dollar spent also does not cover the additional costs borne by the university, such as:

- The portion of administrative costs limited by the artificial cap of 26 percent within a university's F&A cost rate. As noted above, in 2007, 83 percent of universities exceed this cap by five percent on average.
- Federal agency-imposed salary caps or budget limitations that limit total funding for the scope of research work in the proposal budget (e.g., NIH's salary cap)
- Costs contributed by the university after the project expired—for example, researchers time to prepare publications, progress reports or disseminate results of the research
- Sponsors that limit F&A recovery to specific programs and funding opportunities

Collectively, this anecdotal scenario is about illustrating that the total costs of research are absorbed in part by the university, the federal government has regulations that limit the ability for the university to recover these costs, and the additions of unfunded mandates result in more administrative costs to the university and administrative tasks onto researchers.

Oversight and Accountability Approaches Contribute to Increased Administrative Burden

The investment of taxpayer dollars in research demands oversight and accountability for its use and performance outcomes to demonstrate return on investment. Accountability has several dimensions—accounting for funds spent, compliance with regulatory requirements, and the achievement of the performance outcomes of the research project itself. These require complementary but dramatically different forms of oversight.

Since the 1950s, the U.S. Office of Management and Budget, federal agencies, and the audit community have primarily focused on the proper accounting of funds spent as a measure of successful oversight. While this is certainly one part of the equation, it is not the only factor that should be considered as there are significant costs and negative impacts to research performance that can result from this lopsided and often inconsistent focus of oversight.

The audit community has a significant influence on the growing administrative burden of grants management. Its interpretation of policy may not always be consistent with that of the federal agency, other audit entities (e.g., federal, state, or private auditors or firms), or the grant recipients (universities). When there are headlines about audits questioning research grant costs at one university, this often has a ripple effect throughout the higher education research community, which is averse to risk and wants to protect the reputations of their universities. As a result, universities impose their own policies (and administrative burdens) on

14. Council on Governmental Relations, "Excellence in Research: The Funding Model, F&A Reimbursement, and Why the System Works."

their researchers to avoid the potential of similar headlines and audit findings based on these interpretations. This occurs even in instances where headline-producing audit reports containing questioned costs are ultimately not sustained through the audit resolution process.[15]

For example, the National Science Foundation (NSF) Office of Inspector General (OIG) issued 35 audit reports that questioned research costs claimed by universities receiving NSF grants that have completed the audit resolution process between May 2014 and July 2019. In these audits, the OIG questioned $28.8 million in costs representing only half of one percent of the $6 billion in claimed costs.[16] The audited universities only agreed with $2.2 million (7.4 percent) of the total costs questioned by the OIG.[17] NSF's audit resolution office disagreed with 90 percent ($26.7 million of the $29.8 questioned) of the costs originally questioned by the OIG. Ultimately, only $3.1 million of $6 billion, or half of one-tenth of a percent in claimed costs were disallowed. OIG semiannual reports to Congress only communicate the amount originally questioned in the narrative and, after audit resolution, report only the amount the audit resolution office agreed with.

The audit resolution process for the reports noted above took an average of 1.3 years to complete—which was the time from the OIG audit report issue date to the date of audit resolution. Unfortunately, in this time, the negative media coverage of an OIG's initial findings causes universities to treat these unresolved audits as reputational risks that they need to avoid. As a result, universities may self-impose new or more prescriptive internal controls that adds administrative burden on researchers and contribute to the 44 percent time of spent on administrative tasks noted earlier from the FDP survey. OIG audits also take a considerable amount of time and university resources to complete. One university reported their OIG audit took over three years (from the initial OIG engagement to the final report issued) and approximately 3,000 hours of staff time to respond to OIG auditors, provide documentation, and compile data.

The cumulative effect of this cycle of auditor findings and more restrictive university policies has led to additional layers of compliance requirements—both real and perceived—along with new inconsistencies in their interpretation, and divergent implementation by federal agencies and universities that fund and perform research.

15. Audit resolution is a process where the federal agency of the OIG reviews the questioned costs in its' OIG audit report to determine allowability to the federal agency and government wide policies. This independent process helps to resolve differences in opinion and interpretation between auditors and universities.

16. Data for questioned costs relative to the number of transactions tested or amount of transactions tested is inconsistently presented in the audit reports provided to the public. However, the amount of the audit universe, in terms of costs claimed under the scope of the audit conducted, was.

17. Data compiled from OIG Reports and Audit Resolution Letters: as of October 2019 https://www.nsf.gov/bfa/responses.jsp.

OBJECTIVE, SCOPE, AND METHODOLOGY FOR THIS REPORT

The objective of this report is to highlight how federal regulations, federal agency policies, a grant recipient's own university policies, and the interpretation of these regulations and policies often have an unintended consequence of focusing on compliance-oriented paperwork versus the performance of a research project. Specific examples of major research administration areas and/or associated regulations that could significantly benefit from an increased level of standardization, consistent interpretation, and agency, university, and audit community implementation are highlighted. Each example varies in complexity as do the solutions. Some will require significant coordination from all stakeholders to solve while others can be construed as straightforward and easy wins for standardization, cost reduction, and increased efficiency.

The scope of this report is the roughly $42 billion in federal research grants awarded annually to universities, with a particular emphasis on the roles of the National Institutes of Health (NIH) and the National Science Foundation (NSF), as they are the two largest agencies that fund basic research.

The methodology for this report is based on the experience of the authors, interviews, and a literature review that draws on publicly available data from federal agency and award recipient websites, as well as multiple reports from the National Science Board (NSB), the National Academies of Sciences, Engineering and Medicine (NAS), the Government Accountability Office (GAO), and several professional organizations. The authors have used a comparative methodology to provide a holistic picture of the administrative burden associated with managing grants. It should be noted that the topics discussed in this report are selected examples and do not represent the full scale of administrative burden of the research enterprise.

Note: *The collective experience of the authors provides the foundation for this report, its findings, and recommendations, including prior data and research. The opinions and recommendations made within this report are solely those of the authors and do not represent any stated position or agreement from the universities for which they are employed.*

The Lifecyle of a Research Grant

To fully understand the amount of work that goes into managing a grant, it is important to understand the various stages of the lifecycle of a research project. Each stage contains its own set of steps that must follow federal agency and university policies and processes. Following is a very high-level, over-simplified overview of each phase. See also Figure 4.

Proposal Phase

- **Idea Development.** The researcher has an idea or an area of interest they would like to further explore.
- **Opportunity Identification.** Researchers must familiarize themselves with the funding opportunities that are available from federal and nonfederal (private foundation, state, corporate, etc.) sources and try to match their idea to a sponsor that is likely to provide funding to support their research.
- **Proposal Preparation and Submission.** This is the most time intensive activity of this phase. Researchers may spend an average of 38 working days writing a new grant,[18] and in addition to the research plan, the common components of a proposal include an abstract, budget, budget justification, biosketch/curriculum vitae (CV), and facilities and resources.

Each funding agency requires these documents in a slightly different format and may also have agency specific requirements as well. For example, if an NSF proposal includes any post-doctoral students, a mentoring plan must be included. Including documents that are not critical to the scientific peer review process is a considerable time commitment considering that in fiscal year 2018 NSF reported funding only 24 percent of the proposals they received, and NIH only funded 22.7 percent.

Award Phase

- **Peer Review/Selection.** This phase is largely to "wait and see" if the project has been selected for funding. On average, the peer review/selection process can take anywhere from four to nine months or more to complete.
- **Negotiation.** Federal grants are not negotiated as they have a standard set of terms and conditions that, while they can be somewhat unique to each agency, most academic research universities can readily accept. For all other research sponsors—private foundation, state, corporate, etc.—extensive negotiations may be required which can delay the start of a research project.

Post-Award Phase

- **Research.** During this phase of the cycle, the research is performed. A typical project can last anywhere from one to five years.
- **Financial and Technical Reporting.** Depending on the terms of the award, the frequency, and the level of detail required, for financial and technical reporting can vary. NSF and NIH, the two largest funding agencies, require technical reporting by project on an annual basis. In addition, universities are required to do a detailed reconciliation accounting when drawing down funds from a federal payment system. Researchers are also required

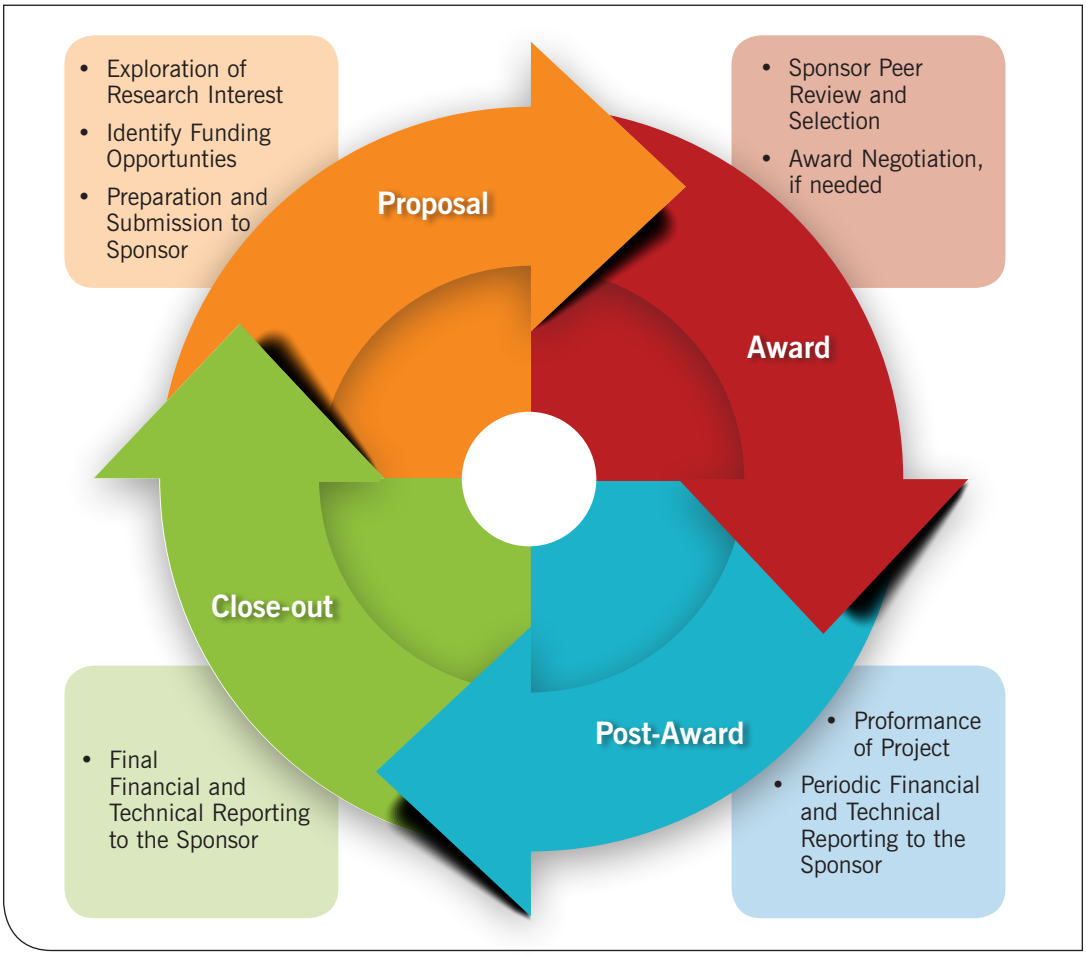
18. Herbert, D.L., Barnett, A.G., Clarke, P., and Graves, N., "On the time spent preparing grant proposals: an observational study of Australian researchers." BMJ open, 3(5), e002800. Doi: 10.1136/bmjopen-2013-002800.

to complete effort reports during this period, certifying that they actually spent the level of effort on the project that indicated they would.

Close-Out Phase

- **Final Financial and Technical Reporting.** This phase of the project involves submitting cumulative financial and technical reports, and any ancillary reports that may have been required by the sponsor (equipment, intellectual property, etc.).

Figure 4 – Lifecycle of a Research Project



Multiple Efforts to Reduce Administrative Burdens

Over the years, efforts have been made by many stakeholders to streamline, harmonize, and reduce burden for agencies and grant recipients. More recently, in 2014, the Office of Management and Budget combined eight circulars that previously governed grants management into one document, commonly referred to as the OMB Uniform Guidance.[19]

As stated in the preamble to the Uniform Guidance,[20] its intended purpose is to help reduce burden on universities by focusing on:

- Performance over compliance for accountability
- Innovative models and cost-effective approaches by strengthening the requirements for internal controls while providing administrative flexibility for universities
- Advances in technology (e.g., sophistication of internal controls) that allow for alternatives to previous requirements (e.g., examples of effort reporting) and can provide a higher standard of accountability without burdensome processes

Additionally, the Uniform Guidance is intended to introduce standardization, when possible, as well as reduce burden in areas of grants management that have long been identified as pain points (e.g., time and effort reporting, subrecipient monitoring, etc.).

However, implementation of this guidance has been uneven and there are continuing efforts on the part of many stakeholders to further reduce burden—in part by implementing provisions in the Uniform Guidance. Moreover, the increase in the percent of faculty time spent on administrative tasks in the most recent survey (42 percent before it went into effect in 2014 and now 44 percent in 2018) suggest that the intended gains that might have been realized by the streamlining efforts were insignificant in the face of the continued growth of unfunded mandates and the perceived or real risks of non-concompliance with them.

OMB Efforts to Reduce Burden

As part of its broader management reform agenda, OMB is currently pursuing three initiatives to reduce administrative burden in the broader grants arena, not just research grants:

Broad Initiative to Reduce Regulation. Early in the current administration, the president issued Executive Order 13771, directing agencies to reduce regulatory burdens and costs imposed on private industry, states, and localities. The scope of this executive order covers grant regulations affecting universities, as well. The executive order, for example, sets a regulatory cap for fiscal year 2017, stating: "Unless prohibited by law, whenever an executive department or agency publicly proposes for notice and comment or otherwise promulgates a new regulation, it shall identify at least two existing regulations to be repealed." The executive order also requires that, as part of the presidential budget process, OMB must identify the total amount of incremental costs that would be allowed for each agency when they add or repeal regulations going forward. Unless required by law, no proposed regulations would be approved that would cause incremental costs to exceed the amount set by OMB.[21]

19. "Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards, 2 CFR Part 200 (2014). https://www.grants.gov/learn-grants/grant-policies/omb-uniform-guidance-2014.html. The Uniform Guidance are requirements for the federal grantmaking agencies to include in award notices to all grant recipients (universities, nonprofits, state agencies, etc.). The UG combined and replaced eight previous Circulars that governed federal grants management. With the exception of the Cost Principles, federal agencies have some flexibilities in how they implement the Uniform Guidance. Although not the UG is not directed at grantees directly, grantees rely on it to better understand federal requirements that will be applied to them for management of federal grants.

20. Available at: https://www.federalregister.gov/documents/2013/12/26/2013-30465/uniform-administrative-requirements-cost-principles-and-audit-requirements-for-federal-awards.

21. Executive Order 13771, "Reducing Regulation and Controlling Regulatory Costs" (January 30, 2017) https://www.federalregister.gov/documents/2017/02/03/2017-02451/reducing-regulation-and-controlling-regulatory-costs.

While this executive order did not have an immediate effect on the federal grants community, its philosophical underpinnings were the basis for the following two cross-agency priority goals.

Cross-Agency Priority (CAP) Goal #6: Shifting from Low-Value to High-Value Work. According to OMB, the objective of this initiative is to "shift time, effort, and funding currently spent complying with unnecessary or obsolete policies, guidance, and reporting requirements, toward accomplishing mission-critical objectives and other high-value work." The focus on this initiative is on internal administrative requirements, not regulatory requirements imposed on the public (which requires a separate process). Based on quarterly progress reports posted on performance.gov by OMB, there have not been specific initiatives to date that address research grant-related administrative burdens.[22]

Cross-Agency Priority Goal #8: Results-Oriented Accountability for Grants. According to OMB, the objective of this initiative is to "Maximize the value of grant funding by applying a risk-based, data-driven framework that balances compliance requirements with demonstrating successful results for the American taxpayer." To this end, it is pursuing four strategies:

- Standardizing the grants management business process and data
- Building shared IT infrastructure
- Better managing risk
- More effectively achieving program objectives and goals

As part of the work being done under this goal, there has been a strong focus on standardizing data elements across federal agencies with the intent of streamlining the collection and reporting of data received from grant recipients, as well as sharing this data across agencies. This effort has been reinforced by the enactment of the Grant Reporting Efficiency and Agreements Transparency (GREAT) Act on December 30, 2019. This legislation requires data elements for grant reporting be standardized across all agencies and stored in a central repository that is available to all stakeholders. This standardization has the potential to reduce administrative burden by eliminating the need for duplicative data entry and data collection. However, there are still opportunities for standardization in areas other than data standardization that could result in a significant reduction of administrative burden for all.

According to quarterly progress reports on the implementation of this initiative, OMB says: "Once recipients can successfully demonstrate strong program performance practices, there may be an opportunity to leverage the risk management framework developed in Strategy 3 to alleviate select compliance and appropriately tailor the terms and conditions of each award to provide flexibility to better execute the mission." To that end, OMB is gathering examples of effective grant performance practices and publishing a resource guide.[23] However, it is unclear at this time how "performance" is being defined in this context.

Uniform Guidance Revision. On January 22, 2020, OMB published in the Federal Register proposed revisions to the Uniform Guidance for public comment. The proposal demonstrates OMB's commitment to reduce administrative burden on the grant recipient community. The most significant of these proposed changes and clarifications are related to: (1) subrecipient monitoring, (2) procurement thresholds, (3) award close out, (4) expanded use of the de minimus F&A rate, and (5) allowing federal agencies to issue fixed amount grants and cooperative agreements clarify the

22. OMB progress report, June 2019, for CAP Goal #6: https://www.performance.gov/CAP/action_plans/june_2019_Low-Value_to_High-Value_Work_UpdatedVersion.pdf.
23. OMB progress report, June 2019, for Cross Agency Priority Goal #8: https://www.performance.gov/CAP/action_plans/june_2019_Results-Oriented_Accountability_for_Grants.pdf.

definition of fixed amount award to specifically include grants and cooperative agreements, and (6) adds a new section on Program Planning and Design. These proposed revisions align with CAP goal #8 of achieving a better balance between results vs. compliance.

Other Cross-Agency Efforts to Reduce Burden

In addition to OMB, there are a number of other federal stakeholders who have undertaken efforts to address administrative burden in research grants to universities, including:

Coordinating Administrative Requirements for Research. The Coordinating Administrative Requirements for Research committee—formerly known as the Research Business Models Working Group—is a federal interagency working group of a subcommittee of the White House-sponsored Committee on Science. Its goal is to address challenges to the management and performance of research projects. Over the years, this working group has been instrumental in delivering solutions that have had a significant impact on reducing administrative burden. As outlined in its charter, it is responsible for the following:

- Examine opportunities and develop options to streamline and unify agency research grants and contracts administration practices.
- Investigate how the changing nature of scientific research and its practices in academia and government laboratories affect the cost of research.
- Examine the impact of regulatory and administrative requirements placed on performers of federally-funded research.
- Examine all (federal, state, local, university, other nonprofit, industry) policies that affect construction and maintenance of the research infrastructure.
- Assess and report periodically on the status, efficiency, and performance of the research partnership between the federal government and the academic community.
- Perform other such functions as the committee shall deem necessary to meet the purpose of the working group, subject to approval by the Committee on Science.

Its recent areas of emphasis include the establishment of a centralized repository for a grant recipient's assurances that they are in compliance with all applicable regulations, creating a central database for researcher profiles, and a simplified and uniform grant application process.

National Science Board. The National Science Board, which oversees the National Science Foundation, published a report in 2014 that acknowledges that the increase in administrative and compliance requirements related to performing federal research is hindering the performance of the research itself.[24]

The Federal Demonstration Partnership. The Federal Demonstration Partnership (FDP) is a cooperative of 10 federal agencies and more than 150 research universities (e.g., administrators and faculty participants) that work together to identify solutions for reducing administrative burden in grants management and develop and then implement pilot projects to demonstrate its effectiveness and impact. This model has been successful partly because it allows both federal agencies and grant recipients to "test" a new business process or policy prior to making official changes.

24. "Reducing Investigators' Administrative Workload For Federally Funded Research," The National Science Board, March 2014.

Some of the current pilots are related to centralized repositories of administrative information that FDP members can access to confirm another member institution's compliance with applicable regulations, faculty workload surveys, and data standards and definitions related to reporting to the federal agencies.

Government Accountability Office. The U.S. Government Accountability Office (GAO), which reports to Congress, released two pivotal reports on grants management in recent years:

- In 2016, GAO released a report on federal research grants that found the variation amongst federal requirements, detailed documentation requirements at the proposal stage, and overly prescriptive requirements for certain processes added to a grant recipient's administrative burden and cost to perform the research. Recommendations included expanding use of pre-proposals, delaying the collection of certain data elements until after an initial recommendation for funding, and standardizing requirements where possible.[25]
- In 2018 testimony, GAO found among other issues related to grants management that "grant management requirements that were duplicative, unnecessary and conflicting." Recommendations included standardizing data elements, improved communication and coordination across agencies, and establishing goals for initiatives and tracking progress toward completion.[26]

National Academies of Sciences, Engineering, and Medicine. In 2016, the congressionally-chartered National Academies of Sciences, Engineering and Medicine, reviewed the health of the nation's research enterprise and reported many significant challenges.[27] It made several recommendations for improvement to stakeholders, including federal agencies, OMB, Congress, and grant recipients.

Several publications from professional organizations, such as the Council on Governmental Relations, also have highlighted needed changes. In addition, the 21st Century Cures Act, passed by the U.S. Congress in December 2016, included language directing federal agencies to pursue reforms in several areas identified as "administratively burdensome."

American Innovation and Competitiveness Act. In January 2017, Congress passed the American Innovation and Competitiveness Act (AICA)[28] directing OMB to create an interagency working group in collaboration with the Office of Science and Technology Policy (OSTP) to review existing regulations with a goal to streamline and reduce burden on researchers and universities. AICA further calls for the working group to develop a uniform and simplified grant format and expanded use of pre-proposals, simplified budgets, and collecting some information just prior to the award phase.

Individual Agency Efforts to Reduce Burden

There are several examples of federal agency efforts to reduce administrative burden for themselves as well as grant recipients. NIH offers two excellent examples:

- **NIH Modular Budgets.** The NIH modular budget allows universities to request budget dollars for a project in modules of $25,000 (cannot exceed $250,000 per year in direct

25. Government Accountability Office, "Federal Research Grants: Opportunities Remain for Agencies to Streamline Administrative Requirements" (June 2016) GAO-16-573.
26. Government Accountability Office, "Grants Management: Observations on Challenges and Opportunities for Reform," (July 2018) GAO-18-676T.
27. *Optimizing the Nation's Investment in Academic Research: A New Regulatory Framework for the 21st Century,* The National Academies of Sciences, Engineering and Medicine, July 2016.
28. https://www.congress.gov/114/plaws/publ329/PLAW-114publ329.pdf.

costs). NIH limits the use of modular budgets to certain grant programs. A few examples include Research Project Grants, Small Grants, and Exploratory/Development Research Grants. The purpose of this budgeting mechanism is to "focus the attention of investigators, their universities, peer reviewers, and NIH staff on science rather than budget details."[29]

- **NIH Just-in-Time Process.** NIH also uses a just-in-time (JIT) process to collect information that is not critical to the scientific peer review. This request occurs after an application has been scored favorably via peer review but prior to funding. Information requested during the JIT process includes approved protocols for human or animal subjects, other support information for the principal investigator, and any other key personnel identified in the application. By requesting this information prior to award, it alleviates the strain of obtaining approved protocols for a project that may not be funded, while also allowing NIH to evaluate the most current support researchers have in support of their research endeavors.

University Efforts to Reduce Burden

Many universities have implemented electronic systems to help manage their research portfolio and have adopted a Lean Six Sigma approach to business processes. Many of the more research-intensive universities actively participate in FDP, and engage with professional organizations such as the:

- Council on Governmental Relations (COGR)
- Association of American Universities (AAU)
- Association of Public and Land-grant Universities (APLU)
- National Council of University Research Administrators (NCURA)
- Society of Research Administrators International (SRAI)
- Cohort for Efficiencies in Research Administration (CERA)

These organizations are effective at communicating best practices of peers and potential adverse impacts of new regulations to federal agencies. However, the broader adoption of these best practices is often limited by a university's aversion to assuming a potential risk to having audit findings. As a result, few remove prescriptive requirements for compliance that have not been tested and accepted by the audit community.

The most common recommendations for areas of improvement, cited in many reports from the NSB, NAS, GAO, various professional organizations, and the higher education community, include the following regulatory requirements:

- Documentation of personnel expenses (e.g., time-or-effort reporting)
- Expanded use of preliminary proposals
- Financial reporting
- Sub-recipient monitoring
- Human subjects research and the use of institutional review boards (IRBs)
- Animal research and the use of institutional animal care and use committees (IACUCs)
- Financial conflict of interest of researchers

29. https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/develop-your-budget/modular.htm.

Reducing Burden at the Proposal Phase

According to a study[30] published in the British Medical Journal, researchers spend an average of 38 working days writing a new proposal. In addition to the research plan, the common components of a proposal include an abstract, budget, budget justification, biographical sketch/curriculum vitae, and facilities and resources. This time is not allowed to be charged to funding agencies and, therefore, is entirely funded by grant seekers and their universities.

Each funding agency requires these documents in a slightly different format and may also have agency specific requirements as well. For example, if a National Science Foundation (NSF) proposal includes any post-doctoral students, a Post-Doctoral Mentoring Plan must be included. Including documents that are not critical to the scientific peer review selection process is a significant time commitment, considering that in fiscal year 2018, NSF reported funding only 24 percent of the proposals received, and NIH only funded 22.7 percent.

There are a number of efforts to reduce these kinds of wasted time commitments in the proposal stage by, for example, not requiring submission of information that is not pertinent to the peer review process until a proposal is conditionally accepted. Following are selected examples of progress and areas for additional action.

Grants.gov: Creating a One-Stop Location Has Been a Qualified Success

One of the earliest initiatives to modernize and standardize processes across federal grantmaking agencies was the development of Grants.gov for proposal submissions. Prior to the development of Grants.gov, the process for submitting grant applications varied by agency.

The Federal Financial Assistance Management Improvement Act of 1999[31] and the 2002 President Management Agenda[32] mandated that a central source be developed to both find and apply for federal grant opportunities. Even though one system now exists for all federal grantmaking agencies to use to post grant opportunities and receive proposals, some agencies continue to use and develop their own unique proposal and award management systems. For example, NSF uses Fastlane and Research.gov and the National Aeronautics and Space Administration (NASA) uses its own NASA Solicitation and Proposal Integrated Review and Evaluation System (NSPIRES). Applicants, however, can use either Grants.gov or an agency-specific system to submit the application.

The primary goal of the Grants.gov initiative was to create an electronic system that would serve as a centralized location for grant seekers to both find and apply for federal funding. This goal was achieved, and even agencies who use their own systems also are required to use Grants.gov. Grants.gov enabled agencies that did not already have electronic proposal submission systems—NIH as the largest agency—to modernize their processes related to proposal submissions. Until the implementation of Grants.gov, NIH applications were submitted in paper format and included very detailed packaging instructions for the submitter.

Despite the creation of Grants.gov, this initiative cannot be considered a total success as it was not fully accepted by all federal agencies or the user community. Nevertheless, it cannot be considered a failure either as it did create a centralized location for finding funding oppor-

30. Herbert, D.L., Barnett, A.G., Clarke, P., and Graves, N., "On the time spent preparing grant proposals: an observational study of Australian researchers." BMJ open, 3(5), e002800. Doi: 10.1136/bmjopen-2013-002800.
31. P.L. 106-107.
32. OMB, Fiscal Year 2002 Budget, Presidents Management Agenda, https://georgewbush-whitehouse.archives.gov/omb/budget/fy2002/mgmt.pdf.

tunities while also providing a mechanism through which grant applications could be electronically submitted. Grants.gov represents a good example of what lessons were learned that should be considered in future initiatives. Those lessons include obtaining increased consistency amongst the federal agencies to maximize adoption prior to rolling out to the user community, change management, and measuring progress.

Using a Pre-Proposal Model: A Practice Worth Expanding

Some federal agencies (e.g., NSF, Department of Defense, Department of Energy) have developed a "pre-proposal" model which serves as a condensed version of a full-scale application for funding. Agencies that use the pre-proposal model usually require a high-level scope of work limited to three to five pages, a summarized budget and budget justification, and an abbreviated biographical sketch for the primary investigator and key personnel.

A 2014 National Science Board report,[33] a 2016 National Academies of Sciences report,[34] and the 2017 American Innovation and Competitiveness Act[35] all call for the creation of an interagency working group to develop a pre-proposal model and require its use across all research grantmaking agencies.

The use of a pre-proposal approach could be beneficial to both federal agencies and applicants for several reasons. It would:

- Create consistent application requirements from all federal agencies for pre-proposals, thereby leading to a more standardized approach for full proposal applications.
- Reduce the amount of time that researchers spend preparing the proposal ("full") application.
- Reduce the amount of time spent by federal agencies vetting and reviewing applications that are not meritorious.
- Allow universities and federal agencies the ability to invest resources on viable applications.
- Reduce the gap in time between the proposal submission and funding decision.

In addition to the benefits listed above, agencies could use pre-proposals to fund "proof of concept" projects. This approach could expand novel research discoveries without a significant investment of federal funds.

Standardizing Formats for Biographical Sketches and Curriculum Vitae

Included in each federal proposal application, principal investigators and key/senior personnel who are essential to designing and/or executing the proposed research "in a substantive, measurable way"[36] are required to include their biographical sketches ("biosketches") that highlight their education, research experience, and relevant publications. These valuable documents contain information that is used by review panels to evaluate the capabilities and expertise of the proposed research team on whether or not they can execute and complete the proposed project.

33. "Reducing Investigators' Administrative Workload for Federally Funded Research," The National Science Board, March 2014.
34. *Optimizing the Nation's Investment in Academic Research: A New Regulatory Framework for the 21st Century,* The National Academies of Sciences, Engineering and Medicine, July 2016.
35. S. 3084 (114th): American Innovation and Competitiveness Act. Retrieved from: https://www.govtrack.us/congress/bills/114/s3084.
36. "Frequently Asked Questions, Senior/Key Personnel." NIH Office of Extramural Research, 2011. Retrieved from https://grants.nih.gov/grants/policy/senior_key_personnel_faqs.htm#1658 on June 12, 2019.

While some of the data elements required are the same across agencies, there remains significant variations in content and formatting. For example, the NSF template limits activities that demonstrate expertise to only five (e.g., synergistic activities), imposes a two-page limit, and requires a one-inch margin and font size no smaller than 10-point of a limited number of typefaces.

On the other hand, the NIH requires a descriptive personal statement and the investigator's top five most significant contributions to science and imposes a limit of five pages, margins no smaller than 0.5-inch and a font size of 11 points or larger. The question must be asked, what is the scientific value of these agency-specific requirements related to content and formatting? While standardizing the format and content of a researcher's biosketch seems like a straightforward and easy solution as a requirement for grant recipients, it has been an ongoing effort for several years.

The Science Experts Network Curriculum Vitae (SciENcv) is an existing federal government-wide electronic initiative that allows researchers to store their professional profile in a central location. The goal is that by using SciENcv, researchers can minimize repeated data entry into agency-specific biosketch templates. On a basic level, this resource is a practical effort. However, it does not address the underlying concern of why biosketches contain different information for federal grant applications.

There are no statutory requirements for such differences; therefore, a consensus for requirements could be reached and implemented at the federal agency level. The overarching challenges for federal agencies would be those electronic systems that are configured to collect/receive data in a specific format along with a change management component for agency staff and peer reviewers who have grown accustomed to viewing specific data elements in a traditional format.

This issue is being tackled by the Interagency Coordinating Administrative Requirements for Research (CARR) committee;[37] however, it is just one small part of a much larger issue related to tracking research productivity (e.g., affiliations, publications, citations, intellectual property, proposal and award data). This comprehensive set of information is not only managed in different systems, but maintained by different stakeholders (e.g., publishers, federal agencies, universities), often resulting in disparate and outdated information.

Recommendations to Reduce Administrative Burden at the Proposal Phase

Recommendation One: The Office of Management and Budget should consider directing major federal grant funding agencies to implement a standardized pre-proposal format.

Recommendation Two: The interagency Coordinating Administrative Requirements for Research (CARR committee), charted by the White House Office of Science and Technology Policy, should explore the option of developing a standardized pre-proposal format and determine the set of more detailed documents that could be submitted "just-in-time"—that is, after a selection decision but before the award is made.

37. "Reducing Federal Administrative and Regulatory Burdens on Research," A Report by the Research Business Models Working Group, Committee on Science of the National Science & Technology Council, May 2018.

Recommendation Three: The CARR committee should consider developing an abbreviated, standardized biosketch format to facilitate peer reviewers being able to assess the expertise of the key members of the research team.

Recommendation Four: The CARR committee should make recommendations to shorten the timeline between pre-proposal submission, full proposal submission, and award.

The CARR committee already includes the appropriate stakeholders from funding agencies to develop a model by expanding use of the just-in-time process as well as simplified proposal submission requirements, i.e., the pre-proposal. This model would increase consistency and reduce the amount of time invested by grantees in proposal preparation and time spent by federal agencies in reviewing full proposals.

This could also be an opportunity for agencies to fund proof-of-concept projects, those projects that are innovative ideas but may not yet warrant full-scale funding. The pre-proposal application process would alleviate the burden for both federal agencies and grant applicants while also facilitating scientific innovation with minimal administrative burden requirements for all stakeholders (e.g., federal agencies, grantee universities, and the audit community).

The CARR committee is also the right group to address the standard, abbreviated biosketch requirements, and format. This should be separated from the larger initiative of tracking the entirety of a researcher's output for a more immediate gain in standardization across agencies.

Reducing Burden at the Award Phase

The award phase in the four-part research grant cycle is probably the briefest segment, however there are opportunities to streamline.

"Just-in-Time" Information Collection Reduces Waste

As previously noted, the National Institutes of Health uses a just-in-time (JIT) process to collect information that is not critical to the scientific peer review. This request occurs after an application has been scored favorably via peer review but prior to funding. Information requested during the JIT process includes approved protocols for human or animal subjects, other support information for the principal investigator, and any other key personnel identified in the application. By requesting this information after a grantee is provisionally selected but prior to award, it alleviates the strain of obtaining approved protocols for a project that may not be funded while also allowing NIH to evaluate the most current support researchers have in support of their research endeavors.

Standard Research Terms and Conditions: A Successful Pilot Project

Another successful standardization effort grew out of a pilot project sponsored between 1986-1996 by the Federal Demonstration Partnership (FDP) through the creation of Standard Research Terms and Conditions (RTCs). Prior to 1986, federal research grantmaking agencies independently determined what terms and conditions that a grantee was subject to when a research grant was accepted for funding.

While the terms had to be compliant with the applicable OMB circular (e.g., A-21, A-110, A-133), agencies could include or exclude recipient requirements around:

- Financial and performance reporting
- Cost sharing
- Revision of budget and project plans
- Project extension requests
- Carryover of project funds from year-to-year for project continuation
- Changes made to the project often required prior approval from the sponsor agency and were significantly burdensome for both entities.

As a consequence, the variation of terms and conditions created an enormous burden for recipient universities. For example, if a project needed to deviate from the original submission in the proposal and re-budget funds from one budget category to another, most agencies required that the grantee receive agency permission prior to making the change.

Because this was a pilot, this standardization was limited to FDP member agencies and universities only. However, the reduction of burden on both federal agencies and research universities was so significant that standardized RTCs were adopted and implemented for all research grants regardless of FDP membership in July 2008.

The collaborative and consensus-building method in which the RTCs were created and tested by the members of the FDP is an example of how standardization can help eliminate organizational waste. The RTCs can be found on the NSF website.[38]

As of today, most of the largest federal grantmaking agencies have adopted the Standard Research Terms and Conditions (RTC) developed by the RBM Working Group, based on the experience of the FDP pilot project.[39] By using the standard RTCs, universities are familiar with and are able to easily accept the grant awards quickly, as well as manage them consistently in their systems.

While the award stage of the lifecycle of a research grant no longer represents the biggest burden to grant recipients, it should be noted that not all federal agencies agreed to use the standard RTCs.

Recommendations to Reduce Burden at the Award Stage

Recommendation Five: OMB should consider directing all research grantmaking federal agencies to use the just-in-time process to collect information that is not critical to the peer review process.

Recommendation Six: OMB should consider directing all research grantmaking federal agencies to adopt usage of the standard research terms and conditions unless prohibited by statute or they add burden to the requirements of awardees.

38. National Science Foundation. "Research Terms and Conditions." Retrieved from: www.nsf.gov/awards/managing/rtc.jsp on May 29, 2019. The RTCs are presented in a matrix format for ease of reviewing information. Organizational categories include subject, change of principal investigator, issuance of a sub-award, re-budgeting, and more, as well as whether each participating agency has waived their prior approval requirement (e.g., a footnote will be present if prior approval is waived or required only in special circumstances).
39. https://www.nsf.gov/awards/managing/rtc.jsp.

Reducing Burden at the Post-Award Management Phase

Of all of the stages of the grant lifecycle, the post-award management phase offers the greatest opportunity for reducing administrative burden. This section highlights four specific elements of post-award burden. Two elements continue to pose burdens, one element is an example of how burden was overcome, and the final element is an example of how to dramatically reduce burden by changing the accountability model along the lines of similar efforts in other policy arenas.

Time-or-Effort Reporting: Decades of Struggle and Inaction

Salary and its associated fringe benefits usually accounts for up to 80 percent of all research grant project budgets. Ensuring accurate accounting for their expenditure is also a large source of administrative burden. According to a 2012 survey of principal investigators by the Federal Demonstration Partnership, half identified it as taking a substantial amount of their research time away from research activities.

Federal documentation requirements to validate salary expenditures under federal research grants have been subject to a long history of regulatory changes, inconsistent practices to comply, and regulatory interpretation. The methodology to document or report salary charged in accordance to these regulations has been a source of confusion and administrative burden for faculty and universities to understand and perform for nearly 60 years. It is also a source of significant adverse audit findings for research universities.

Time-or-Effort Reporting Requirements Based on a Flawed Assumption. Time-or-effort reporting became a requirement in 1958 when the U.S. Department of Defense (DoD)–the main funder of academic research and contracts at that time—used its primary agreement vehicle through which researchers received federal research support.[40] The DoD requirement that consisted of strict cost accounting (e.g., requiring documentation of the number of hours worked), similarly applied to its industry contractors, was the foundation for this policy although academic researcher work activities are very different from that of private contractors.

To meet this requirement, most universities implemented a monthly reporting procedure that required individual researchers to provide estimates of "time" spent on a project after the actual work was completed. This time reporting practice of either hours worked or a proportion of total hours worked still exists today. However, it is a fundamentally flawed methodology because academic researchers are not hourly employees who track their time nor is there a typical expectation of a standard 40-hour work week for the contract they are paid to perform.

This flawed methodology based on hours worked is poignantly emphasized by Robert J. Kenney (see textbox).[41] [42] The assumption that researchers have a "normal" work week is a perception that almost always would violate federal cost principles. As academic universities typically would not have the budgets to accommodate overtime or be prepared to account for hours that may exceed a standard eight-hour workday for professional employees, the reality

40. Boffey, P.M., "Effort Reporting: Government Drops Much-Criticized Paperwork." Science. 1968 Jun 21;160(3834): 1322-4.
41. OMB Circular A-21 ("A-21") "Cost Principles for Educational Universities" is the federal government's cost principles for colleges and universities. It defines what costs are allowable and allocable to federal grants and other "assistance" agreements. • OMB Circular A-21 (Section J.8) sets forth criteria for acceptable methods of charging salaries and wages to federally-sponsored projects. • A-21 requires a payroll distribution system that directly charges salaries to appropriate projects. • In addition, A-21 requires that universities develop a mechanism to determine or confirm how individuals actually expend effort during a specified time period. These effort reports must be performed on a regular schedule and must be certified by individuals who have firsthand knowledge of 100 percent of the employee's compensated activities. In most cases, that individual would be the employee or the employee's direct supervisor. • Note that in 2014 that Circular A-21 was absorbed into the Uniform Grant Guidance.
42. Kenney, R.J. "Time and Effort Reporting: Overview and Risk Assessment," Report on Research Compliance, National Council of University Research Administrators. January 2006.

of the activities performed by faculty was difficult to interpret, manage, and implement. Nonetheless, these were the accounting expectations of that time.

The reality is that faculty participate in an intermingled blend of work activities that traditionally encompass three roles: research, teaching, and service and is compensated by contract to perform related activities over a nine-month (academic period) or 12-month period regardless of the number of hours actually worked. Moreover, the nature of their work can be completed in a variety of locations and in various interactions. This is especially the case in today's work environment with the use of technology and the ability to be 'connected' at all times.

FLAWS IN ASSUMING A 40-HOUR WORK WEEK BY ACADEMICS

> A faculty member working 30 hours a week on a sponsored project and 30 hours a week on teaching would, using such a base, report total effort of 150 percent (75 percent on the sponsored project and 75 percent on teaching). This would result in more than 100 percent of the faculty member's salary being allocated between the two activities—not only an anomaly and a violation of [OMB Circular] A-21, but also impossible from a cost accounting standpoint. If, alternatively, 75 percent of the salary was charged to the sponsored project and only the remaining 25 percent was allocated to teaching activity, there would be a disproportionate charge to research because the sponsored project would be charged three times as much salary as the teaching activity, even though the amount of time spent on each activity was the same.
>
> —Robert J. Kenney, 2006

Efforts to Reform Time-or-Effort Requirements Waxed and Waned Over Time. In the 1960s, research grant regulations were further expanded to include personnel who were not charged to the government-sponsored project to also complete time-or-effort reports in order to account for university "cost sharing" or the university's own investments to complete a project that were not paid by the government.

In response to the outcries of the research community for this burden and the uselessness of the accounting exercise to document it, the Bureau of the Budget (BOB)—the predecessor of the OMB—formed an interagency task force on "time-or-effort reporting" in 1967 to investigate the associated problem and propose solutions. As a result, OMB Circular A-21—"Cost Principles to Educational Institutions" was amended in 1968 to remove numerous requirements and provide greater flexibility for documenting personnel charges.[43]

Unfortunately, this regulatory relief was short-lived. Circular A-21 was amended shortly thereafter to add back prescriptive guidance to the documentation necessary to account for salary charged to the federal government. In 1980, Circular A-21 was revised to include examples of how universities could meet time-or-effort documentation requirements. One example in particular became frequently used by many universities in their attempt to reduce the risk of audit findings. Example 1 shows how confusion can still exist with this model.

43. OMB Circular A-21, "Cost Principles for Educational Institutions," (last revised in 2004); subsumed by the Uniform Guidance reform in 2014, https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A21/a21_2004.pdf.

EXAMPLE: TIME-OR-EFFORT REPORTING

Assume Professor-A and Professor-B had the same university base salary for work activities assigned at $120,000 per year. Professor-A worked an average of 40 hours/week and Professor-B worked an average of 80 hours/week.

A research task that takes, on average, 8 hours/week is performed by both professors. However, the cost per professor would differ significantly because Professor-A would charge twice the value of the task compared to Professor-B even though Professor B provided more total research work activities.

Professor-A: 8 hours per a 40-hour work week = 20% Effort x $120,000 = $24,000 charged annually.

Professor-B: 8 hours per an 80-hour work week = 10% Effort x $120,000 = $12,000 charged annually.

Example 1 represents the differences between two employees and is an example of how universities could document salary expenditures in order to be "compliant." Despite the same task and approximate time to complete that task, and the same total salary cost incurred by the university—Professor B is more productive and provides greater output. However, the value of this Professor B to the university is actually diluted because of their productivity. Based on the experience of the authors, this type of accounting/compliance can be a confusing paperwork exercise that devalues performance.

Support for Alternative to Time-or-Effort Reporting Methodologies Created in 2014. In its 2014 streamlining efforts, OMB recognized that alternative methods for time-or-effort reporting to satisfy the after-the-fact review requirement of payroll charges may reduce burden. Today, the Uniform Guidance focuses on the allocation of university base salary as a reflection of work activities performed. However, some federal agencies have not embraced this more flexible approach in their own research grant administration policies.

Subsequent studies have decried the wastefulness of the traditional approach:

- Effort reporting was described in a 2014 National Science Board report as, ". . . ambiguous, time-consuming, and not an effective measure of proper use of federal funds. It is incongruent with the administrative structure of universities and the actual manner in which faculty perform research, which is difficult to track given their simultaneous work on multiple projects and the degree to which activities are interwoven."[44]
- A 2016 National Academies of Sciences, Engineering, and Medicine report recommended that the OMB specifically affirm that universities can take advantage of the Uniform Guidance's flexibility for documenting personnel expenses.[45]

44. Reducing Investigators' Administrative Workload for Federally Funded Research, The National Science Board, March 2014.
45. *Optimizing the Nation's Investment in Academic Research: A New Regulatory Framework for the 21st Century,* The National Academies of Sciences, Engineering and Medicine, July 2016.

- The 21st Century Cures Act directs the Secretary of Health and Human Services ". . . to clarify applicability of the [Uniform Guidance] for management and certification systems, including those for personnel expenses."[46]

Despite these studies, agreement to use the flexibilities of the Uniform Guidance by all stakeholder groups (e.g., federal agencies, grant recipients and the audit community)[47] requires more than just a reminder from OMB. Agreement requires a colossal change management initiative across all federal agencies as well as the audit community to facilitate a consistent interpretation of the provisions of the Uniform Guidance (specifically section 200.430) and agreed upon testing methodologies to be approved. An example of an alternative to effort-reporting pilots by universities and the realization of reduced burden—by using the flexibilities introduced in the Uniform Guidance—is described in more detail later in this section.

Federal Cash Transaction Report: A Requirement Eliminated, But Still Required by Some Agencies

Another example of duplicative, low value work is the quarterly Federal Cash Transaction Report (FCTR). Grantee universities draw funds for allowable costs incurred from federal payment systems. For example, the most commonly used systems are the Payment Management System (PMS) and the Award Cash Management $ervice (ACM$) for awards made by NSF.

For this example, NIH and NSF will be the agencies used as examples as they are the two largest federal funding sponsors. Historically, both NIH and NSF grantees would draw funds down in a lump sum based upon expenditures from all eligible awards at their universities. Because the funds were drawn down in a lump sum, the FCTR was required to be filed on a quarterly basis by universities so that agencies and universities could reconcile the funds to the individual awards.

When NSF transitioned to a sub-accounting by project methodology in the ACM$, filing of the FCTR was eliminated as this reconciliation occurred as part of the initial draw down of funds. NIH began the transition from the old pooled accounting methodology to the new sub-accounting methodology in fiscal year 2013 for all new awards. It transitioned to the new accounting method for all non-competing continuation grants issued on or after October 1, 2015. Despite this transition to the sub-accounting methodology, NIH still requires a quarterly submission of the FCTR for all awards even though this information is provided during the process of drawing down funds from the PMS.

If the volume and scope of NIH awards at a given university are large, this could result in a significant amount of duplicative work by a university and adds no value to the process. Unfortunately, there is no empirical data to capture the amount of waste and inefficiency of this duplicative data reporting process. However, universities have reported anecdotally that it can take anywhere between 0.5 to 12 days to prepare a FCTR depending upon the size of their NIH funding portfolio.

46. H.R.6 – 21st Century Cures Act (114th). Retrieved from: https://www.congress.gov/bill/114th-congress/house-bill/6.
47. The authors recognize that it is critical for the audit community to maintain its independence; however, increased education among Office of Inspectors General staffs and their increased understanding can only strengthen their contributions to protecting tax dollars from waste, fraud, and abuse while simultaneously contributing to efficiency and effectiveness.

The Research Performance Progress Report: A Story of Flexibility and Stakeholder Engagement

As part of the programmatic requirements for performing federal research, researchers are required to submit periodic progress and final reports. The creation of the standardized Research Performance Progress Report (RPPR) resulted from efforts of the White House-based Office of Science and Technology Policy[48] along with public comments requested by the RBM Working Group on what changes could improve the efficiency, effectiveness and accountability of the federally-funded research enterprise.

Prior to the RPPR, each federal agency required a myriad of data elements collected across various timepoints in the project in different formats. These variances created a need for university research grant recipients to manage multiple requirements at the university level. But the real burden was felt by the researchers who were recipients of funding from more than one federal agency. The draft standardized RPPR format was published in the Federal Register in 2007 and implemented by issuance of a memo from OMB and Office of Science Technology and Policy to federal agency heads in 2010.[49]

The development and implementation of the RPPR is a success story because it had stakeholder input and feedback from targeted user populations (e.g., grantee universities and federal agencies) and was to be used by all agencies for interim, annual, and final performance reporting. There was some flexibility to allow for agency uniqueness (e.g., optional fields), but the more critical pieces were standardized, such as accomplishments, completed work, learning outcomes, instructions to complete the RPPR, and the format of the document itself.

Fixed Amount Grants: An Opportunity for Radical Burden Reduction

One of the most impactful changes to increase accountability of research performance over financial compliance is to issue fixed amount grants. Fixed amount grants are based on performance outcomes or delivery of research progress and do not have the detailed financial reporting and invoicing requirements of cost-reimbursable awards. The concept of fixed amount grants is not new. In fact, in 1983, the National Academies of Sciences' Ad Hoc Committee on Government-University Relationship in Support of Science had recommended: "For many federal research grants of modest size, payment by cost reimbursement and the associated accounting and administrative procedures are unnecessary and not cost-effective. The use of fixed-amount awards, instead of cost-reimbursement awards, would be advantageous for grants of modest size, where they would simplify handling and provide flexibility with negligible risk of inadequate accountability."[50]

Aside from compensation compliance requirements (e.g., time-or-effort reporting), there are a number of other financial reporting requirements that generate burden and have limited-to-no value on performance. Some of these consist of subrecipient financial monitoring, detailed financial reporting, and other accounting and administrative procedures unrelated to the performance outcomes of the project.

Noncompliance with these requirements create both financial and reputational risks for universities and academic researchers. These compliance-oriented requirements are oftentimes the

48. More specifically, OSTP's National Science and Technology Council's Committee on Science.
49. *Federal Register,* Volume 72, pp. 63629-63631, November 9, 2007, for comment; published in final form in the Federal Register on January 13, 2010.
50. Strengthening the Government-University Partnership in Science, National Academies of Sciences, Engineering and Medicine, April 1983. Retrieved from: https://www.nap.edu/read/19442/chapter/1.

primary focus of auditors for identifying perceived fraud, waste, and abuse. The application of these requirements and the subsequent audits for compliance are not risk-based. That is, small grants are subject to the same requirements (and level of scrutiny) as large grants. Most important, these perceptions and interpretations to compliance are indifferent to the fact that quality research is delivered, and its cost already subsidized by the university. Fixed amount awards would largely eliminate the need for this burden and intense oversight. Instead, the focus of accountability would be shifted to the outcomes of research performance. It is recognized that greater scrutiny on the initial cost estimate for the project is likely to be made by the audit community and a shift in resources towards performance oversight would need to occur. However, these are both areas that benefit performance and value (cost assurance on the front-end) rather than paperwork or accounting compliance.

There are three models currently in place that support the concept of fixed amount grants.

First, NIH has long allowed the use of modular budgets in proposals of up to $250,000 direct costs annually with modular budget components of $25,000. Experience shows that this:

- Streamlines the proposal preparation process
- Simplifies the reviewers process (they often gauge the cost of research to the work performed and $25,000 increments is a reasonable basis)
- Overall, will provide significant efficiencies to researcher time, university, and federal agency costs, and can further the value of federal funding to more research activities versus administrative activities to be performed

If broadly applied, modular budgets could be used as a basis to eliminate the need to estimate itemized costs in proposals. A fixed amount award could be issued on this cost estimate in modular increments.

Second, even though federal agencies do not issue fixed amount awards as standard practice, they do allow prime awardees (universities) to issue fixed-price sub-awards. The process described in the Uniform Guidance is generally as follows:

- Sub-awardee estimates the size of the award based on its costs.
- The prime awardee seeks approval to issue a fixed subaward from the sponsoring federal agency.
- The prime awardee issues a fixed amount award based on performance/deliverables made.

Because they are fixed amount awards and payments are tied to the achievement of milestones and/or performance, they are not subject to a full financial audit. This is a mechanism intended to streamline accounting and administrative requirements and focus funding on performance. Universities are limited to $250,000 per subaward for each project/objective.[51] Payment may be withheld due to non-performance of research, deliverables, or other program objectives.

Third, some federal requirements have created tiered, risk-based approaches that set thresholds for the application of federal compliance requirements. For example, the Single Audit Act has a threshold of $750,000, whereby if a recipient receives a total of federal grants below that threshold, the recipient is not required to undertake an independent audit of those grant funds. Similarly, the Regulatory Flexibility Act requires regulatory agencies to consider waiving or streamlining regulatory reporting requirements if small businesses, nonprofits, and small

51. 2 CFR 200 Uniform Administrative Requirements, "Cost Principles and Audit Requirements for Federal Awards," Part 200.332.

towns are below a certain size.[52] In another example of the use of thresholds, the National Defense Authorization Acts of 2017 and 2018 allow universities to request approval to exceed the micro purchase threshold (e.g., use purchase cards versus a full procurement process for goods and services) of $10,000 based on the university's own risk assessment.[53]

Some institutions have sought and received this approval and others have limited themselves to $10,000 or below based on the threshold set by the Uniform Guidance, institutional risk tolerance and procurement requirements, or concerns of an increased risk for audit findings.

Likewise, if the National Science Foundation's Office of Inspector General (NSF OIG) audit information shared previously is an indicator of university risk of research performance to regulatory compliance, only half of one-tenth of a percent in claimed costs by universities were found to be noncompliant. Universities clearly already subsidize federal research by more than this amount. The cost of many fiscal and administrative compliance requirements and their oversight clearly outweigh the risks of the loss or misuse of federal funds.

If agencies issued fixed amount grant awards of at least $250,000 in direct costs or less annually, this would remove significant cost and burden to universities, federal agencies, and the government oversight community. Instead of focusing on administrative compliance, this model would focus on payments based on technical progress and delivery of research results. It would allow the opportunity for more oversight on research quality, integrity, and reproducibility, and will add direct value to stronger performance-based outcomes.

Recommendations to Reduce Burden at the Post Award Management Phase

The following recommendations are offered after an extensive review of previous efforts and policy. While they may appear as simple solutions, these recommendations have the potential to be highly impactful and could dramatically improve efficiency towards performance-based outcomes for all involved stakeholders while significantly reducing university and federal costs to manage research.

Recommendation Seven: The Coordinating Administrative Requirements for Research (CARR) committee should issue a report that communicates a consistent implementation and interpretation of the Uniform Guidance and reinforce a focus on accountability of performance over accounting (paperwork) compliance. In particular, the report should address provisions related to the allowability of alternatives to time-or-effort reporting.

Recommendation Eight: The CARR committee should recommend eliminating the use of Federal Cash Transaction Reports (FCTRs) for all grant awards that are drawn from the Department of the Treasury using the sub-accounting methodology (by individual project).

Recommendation Nine: OMB should consider amending the Uniform Guidance to require all federal grantmaking agencies to issue fixed amount research grant awards of at least $250,000 or less annually in direct costs plus associated facilities and administrative costs. These types of awards would eliminate most of the administrative and financial requirements of the Uniform Guidance, along with their oversight costs and burden, and instead put a focus on successful delivery of research performance and outcomes.

52. Regulatory Flexibility Act of 1980, as amended. For details see: https://www.sba.gov/sites/default/files/advocacy/RFA_in_a_Nutshell2010.pdf.
53. See also OMB Memo on guidance on implementing changes to the micro purchasing threshold: https://www.whitehouse.gov/wp-content/uploads/2018/06/M-18-18.pdf.

Overarching Opportunities to Reduce Burden

In addition to targeted burden reduction opportunities at each phase of the research grant cycle, there are some overarching opportunities to improve the operation of the federal research grants in general. These opportunities include:

- A more active leadership role by the Office of Management and Budget
- A more consistent and predictable role by the audit community
- Reducing the risk-avoidance stance taken by agencies and universities
- Creating a broader framework for burden reduction by all stakeholders

A More Active Leadership Role by the Office of Management and Budget

OMB is responsible for providing oversight and coordination for financial management, information, procurement and regulatory policies for federal agencies. OMB's role in each of these areas is to help improve administrative management, develop improved performance measures, and reduce any unnecessary burdens on the public. OMB is also responsible for implementing the President's Management Agenda. Given the focus on CAP Goal #6 (shifting from low-value to high-value work), and CAP Goal #8 (results-oriented accountability for grants), OMB is poised to take a much stronger role in not only identifying processes and requirements that are not facilitating improved performance of the research enterprise, but can also set deadlines for consistent implementation across federal agencies.

A More Consistent and Predictable Role by the Audit Community

The role of the audit community in the research enterprise is vital to the credibility and sustainability of the American research grant ecosystem. They are a major stakeholder to ensure federal funds are managed appropriately, and recipients have strong internal controls in place to detect waste, fraud, and abuse, and to improve program efficiency and effectiveness.

For grantees, especially research universities, audits are a regular occurrence. Audits can be helpful by serving as an early warning system, pointing out areas where practice may need to be fine-tuned to keep the university/grant sponsor relationship healthy. However, adverse public exposure and financial penalties for noncompliance can cause considerable reputational damage to universities found in noncompliance. Grantees have an obligation to be responsible stewards of federal research funds and mitigate risk.

Audits can be programmatic or financial and involve different types of testing and assessments depending upon the purpose of the audit, source of funding, and auditor affiliation. Audits are conducted to provide assurance that research reports do not contain material misstatements, to assess the strength of a university's internal controls, and/or assure a grant recipient's compliance with requirements governing the use of grant funds.

Audits are conducted by licensed professionals. Audits that involve federally funded activities must be conducted in compliance with Generally Accepted Government Auditing Standards (GAGAS). Auditors may represent any of the following:

- Federal government agencies
- State and local government agencies
- Universities
- Foundations

- Industries
- Foreign entities

A key attribute of the audit community's culture is their independence.[54] As a result, there are instances when members of the audit community differ in their professional opinion in the interpretation of the requirements of the Uniform Guidance with a federal agency, or a university's policy to comply with those requirements. As reported in a 2016 GAO report: "Some of these audit findings stemmed from differences in how auditors, agencies, and universities interpreted requirements."[55]

As a consequence, GAO went on to state: "Officials from universities and stakeholder groups said that universities are concerned that they need to interpret and comply with requirements to the standards they believe agency inspectors general may apply in an audit." It also noted that this risk-avoidance stance taken by universities has been in response to many multi-million-dollar settlements over the last several years, specifically around differing interpretations of time-or-effort reporting by different audit entities.

As a result, universities often implement their own policies that are more restrictive than required by the regulations or agency guidance in an attempt to avoid audit findings. This risk averse "over-compliance" approach can result in inefficient processes that not only add to self-imposed administrative burden to a university's research community, but can, ironically, also increase the risk of future audit findings as universities will be audited to see if they are complying with their own more restrictive and prescriptive polices.

An example of how differing interpretations contributed to the demise of a promising burden reduction initiative follows.

The FDP Payroll Certification Pilot: How Divergent Audit Approaches Undermined Burden Reduction Effort. From 2011 to 2014, the Federal Demonstration Partnership (FDP) created a pilot for an alternative approach to the traditional time-or-effort reporting system. It worked with four universities to pilot a streamlined payroll certification methodology that would meet the compensation requirements of OMB Circular A-21. As part of this pilot project, the Offices of Inspector General for the U.S. Department of Health and Human Services (HHS) and the NSF were tasked to audit this new methodology and collaborate on the audit approach they would use.

HHS audited two of the participating universities—UC-Irvine and UC-Riverside—while NSF audited two others: George Mason University and Michigan Technological University. All of the universities had very similar internal controls as part of the pilot implementation. In order to compare methodologies, both systems—time-or-effort reporting and project payroll certification system—were audited. Table 1 below shows how the systems of these four universities compared. It also shows how much administrative burden was reduced, as reported by each of the universities.

54. Charles Johnson, Kathryn Newcomer and Angela Allison, Balancing Independence and Positive Engagement: How Inspectors General Work with Agencies and Congress,, 2015; IBM Center for The Business of Government; http://businessofgovernment.org/sites/default/files/Balancing%20Independence%20and%20Positive%20Engagement.pdf.

55. Government Accountability Office, Opportunities Remain for Agencies to Streamline Administrative Requirements (June 2016), GAO-16-573.

Table 1: Pilot Project Results of Pay Certification by Four Participating Universities Show Decreased in Administrative Burden

University Name	Effort Reports Certified (per year)	Project Payroll Certified (per year)	Percent Decrease in Burden
George Mason University	2,700	700	74.1%
Michigan Technological University	6,700	700	90.0%
University of California—Riverside	5,058	752	85.1%
University of California—Irvine	10,500	1,400	86.7%

Source: Federal Demonstration Partnership, "FDP Payroll Certification Pilot Update" (September 4, 2015) at: http://thefdp.org/default/assets/File/Presentations/pc_pilot1_sep_2015.pdf

The NSF Office of Inspector General determined that this alternative methodology provided sufficient accountability over federal funds. However, the HHS Office of Inspector General came to a different conclusion.[56] Despite the fact that the universities used similar approaches in implementing the payroll certification pilot, the HHS Office of Inspector General titled its report, "The University of California at Riverside's Pilot Payroll Certification System Did Not Provide Accountability Over Payroll Charges to Federal Awards." However, this title is somewhat misleading as the traditional time-or-effort reporting sample they audited was double the error rate found in the pilot payroll certification sample (Table 2).

Table 2: HHS Office of Inspector General, Number of Audit Findings, UC-Riverside

	Effort Reporting	Payroll Certification
# of Findings	89 / 94	40 /86
Error Rate	95%	47%

Source: DHHS OIG Audit A-04-13-01026, February 2017, "The University of California at Riverside's Pilot Payroll Certification System Did Not Provide Accountability Over Payroll Charges to Federal Awards." Available at: https://oig.hhs.gov/oas/reports/region4/41301026.pdf

For comparison, Table 3 provides the NSF Office of Inspector General findings from Michigan Technological University and George Mason University.

56. Note: The HHS Office of Inspector General determined that UC-Irvine did not have sufficient data to complete its audit work and did not report findings. However, it was able to complete its work at UC-Riverside.

Table 3: NSF Office of Inspector General Audit Results of Number of Findings

		Effort Reporting	Payroll Certification
Michigan Technological University	Late Certifications	5 of 68	0 of 112
	Funding Change Forms	0 of 68	2 of 112
	Monthly Reports	Informational only	Informational only
George Mason University	Late Certifications	0 of 32	11 of 60
	Funding Change Forms	1 of 14	0 of 41
	Timesheets	1 of 53	0 of 53
	Bimonthly Reconciliations	N/A	12 of 14

Source: Labor Effort Reporting under the Federal Demonstration Partnership Pilot Payroll Certification at Michigan Technological University." Available at: https://www.nsf.gov/oig/_pdf/15-1-023-MTU.pdf, and NSF OIG Audit 15-1-017. "Labor Effort Reporting under the Federal Demonstration Project's Pilot Payroll Certification Program at George Mason University." Available at: https://www.nsf.gov/oig/_pdf/15-1-017-GMU.pdf.

These findings reflect distinct differences in the interpretations of the same guidance made by the OIGs for HHS and NSF. The HHS OIG explained this difference by stating the grants it audited were typically more complex and fund researchers who are often supported by multiple sources (a one-to-many relationship), while NSF grants are less complex and usually a single source of faculty research funding support (a one-to-one relationship).[57]

However, the explanations offered by the two OIG offices do not reflect the experiences of most universities that have a diverse portfolio of federal and nonfederal sources of funding that support faculty research. Furthermore, an analysis of each participating FDP pilot university's policies, procedures, and internal controls showed substantial similarities for their payroll certification systems.

The outstanding question remains: How is a university to have some level of confidence about how to allocate costs and resources to be compliant—especially when two distinguished oversight bodies concluded such variance in their audit reports of pilot universities that followed the same regulations and using similar internal controls?

In the four participating universities, the impact of these findings on the actual performance of the research was not reviewed. They did, however, offer suggestions on ways to improve paperwork to strengthen compliance with regulations.

To reiterate, the research was performed and delivered to the federal government, and the cost savings and reduction in burden of the pilot were realized. However, the ripple effect of the HHS OIG audit report has deterred other universities who may have considered taking advantage of the new flexibilities provided in the 2014 Uniform Guidance.

57. In 2016, the National Academies of Sciences Committee Chair on Federal Research Regulations released a report on the administrative burdens imposed on federal research grant recipients, "Optimizing the Nation's Investment in Academic Research: A New Regulatory Framework for the 21st Century." The report highlights the differences in interpretations revealed in audit resolution. In response, the Offices of Inspector General for NSF and HHS submitted a joint letter to the National Academies of Sciences Committee Chair on Federal Research Regulations wherein they offer justifications for their actions and limitations to fulfill the report's recommendations. However, the authors of this report maintain that inspectors general can retain independence while better understanding agency policies and acceptable university accounting practices. Without efforts to coordinate on their part, grant recipients become victims of the fray between a federal agency and their inspector general and are forced to waste institutional resources to comply to the most restrictive auditor opinion of regulatory requirements, which the NSF audit resolution data indicates is mostly incorrect. Their joint response letter can be found at: https://www.nsf.gov/oig/_pdf/Optimizing_the_Nations_Investment.pdf.

Audit Community Role in Promoting Efficiency and Effectiveness. The Inspector General Act of 1978[58] established Offices of Inspector General to:

- Conduct and supervise audits and investigations that detect fraud and abuse
- Provide leadership and recommend policies that promote economy, efficient, and effectivenss in the administration of programs and operations
- Inform Congress fully about problems and deficiencies relating to the administration of programs and operations

The Act continues to set the duties and responsbilities of each inspector general to be aligned with these original requirements. In 2008, the Act was amended to establish the Council of the Inspectors General on Integrity and Efficiency (CIGIE) with a mission to "address integrity, economy, and effectiveness issues that transcend individual government agencies."

In 2018, CIGIE issued a report, "Top Management and Performance Challenges Facing Mulitlple Federal Agencies,"[59] that identified grant management, performance management and accountability, and financial managent as top cross agency challenges. The report calls for federal agencies to establish outcome-focused measures for their grant programs and ensure performance measurement requirements are incoroporated into grant agreements.

Since 1978, the OIGs have been mandated by Congress to promote economy, efficiency, and effectiveness in federal programs. It is difficult to find any OIG reports that resulted in recommendations to improve efficiency in operations, reduce burden, improve research performance, or create operational cost savings for the conduct of research. Rather, and although not the same stated mission, one could assume the OIG considers the identification fraud, waste, and abuse as a means of promoting economy, efficiency, and effectivness. Moreover, based on the 2018 CIGIE report, it appears the OIGs may have deferred this responsibility to federal agencies and focus their efforts on audits and investigations in order to identify noncompliance to regulations, question costs for research performed, and assess fines and penalties.

Based on the experience of the authors, such a focus does little to promote economy, efficiency, and effectiveness in the use of funds or the cost of conducting research. Nor does it increase or impact the actual outcome of the research being funded by the government. The audit community should adopt enterprise risk management principles, as articulated in the revised OMB Circular A-123 , in order to better balance risk and the cost to institutions and the federal government in the identififcation of questioned costs—i.e., spend $1,000 to identify $10 in questioned costs.[60]

If the audit community continues to focus primarily on the "accounting" of federal funds—at the expense of performance, efficiency, and reduction of costs to perform research—the U.S. research funding model is bound to continue its trajectory of increased costs and focus on burdensome accounting and paperwork. Despite the intent of the regulatory changes introduced in 2014 by the Uniform Guidance with the intent to standardize regulations, federal funding agencies, recipients of federal funds and the researchers themselves continue to struggle to find a consistent interpretation and implementation of issued policies and guidance that result in a model that improves research performance.

58. Inspector General Act of 1978—Public Law 95-452.
59. https://www.oversight.gov/sites/default/files/oig-reports/CIGIE_Top_Challenges_Report_April_2018.pdf.
60. OMB Memorandum M-16-17, "OMB Circular No. A-123, Management's Responsibility for Enterprise Risk Management and Internal Control," July 15, 2016.

It should be noted that OIG audits and investigations that detect fraud do help to identify waste and abuse can lead to an institution strengthening controls for the accountability of funds in accordance with regulations. However, there needs to be a clear and definitive distinction between administrative noncompliance and fraud. For example, unsigned paperwork does not mean the research was not performed, nor should it mean that all findings or questioned costs in an investigation constitutes as fraud subject to additional fines and penalties.

Inconsistencies in Audit Methods Can Also Lead to Greater Burden. Inconsistent interpretation of agency policy and requirements by auditors is another example of wasted resources that could be avoided by establishing standards and having greater communication and coordination with the audit community. One of the most recent examples is NSF's two-month salary limit for senior personnel.

The proposal-preparation guidance from NSF normally limits the amount of compensation requested per year, from any combination of NSF funds, to two months per year. This can be exceeded if justified in the proposal and approved by NSF. NSF's award management guidance allowed award recipients to re-budget funds to exceed the two-month proposal budget limit, without prior NSF approval (unless it results in a change in scope of work), consistent with the compensation and administrative requirements of the Uniform Guidance.

However, the NSF OIG interpreted that guidance differently. As a result, the outcome of many of its audits questioned several millions of dollars in salary costs that exceeded NSF's two-month salary limit for requesting salary in a proposal.

As summarized in Table 4, the NSF Office of Inspector General questioned $14.3 million in costs at 16 different universities for audit reports issued between 2014 and 2017 because the OIG interpreted this requirement to be applicable during the award, rather than as was stated in the NSF Proposal & Award Policies & Procedures Guide (PAPPG) for preparing the proposal budget. This guide serves as the agency's procedural guidance for the proposal and award which contains a limitation applicable to budgeting for proposals.

NSF clarified this requirement in its FAQs that universities have the authority to re-budget and draw compensation for faculty in excess of two months during the award. For this one policy interpretation, NSF sided with the universities during the audit resolution process. As a result, none of the original $14.3 million in costs questioned by the OIG were sustained for audit reports issued between 2014 and 2017 that questioned the 2-month salary budget rule.

The audit resolution process is one in which the federal agency makes a management decision about the costs questioned by the Office of Inspector General. This is typically done along the lines of the data and explanation provided by the university versus the determination made by the Office of Inspector General to question costs. In this case, the NSF Audit Resolution Office determines if the questioned costs will be upheld (sustained) or if the Audit Resolution Office disagrees with the basis, interpretation, or conclusion of the auditor. Unfortunately, due to this incorrect interpretation, there are universities that continue to unnecessarily have policies in place to limit compensation to two months because of these prior audit reports, even after they were determined allowable through the NSF audit resolution process.

More broadly, 35 NSF Office of Inspector General audits had completed the audit resolution process between May 2014 and July 2019. The NSF Office of Inspector General questioned more than $29.8 million in costs from a universe of just over $6 billion in claimed costs. The NSF Audit Resolution Office only sustained $3.1 million or 10 percent of the amount questioned by the OIG. Moreover, the audit resolution process took on average 434 days to complete. This is a significant amount of time during which the public and Congress had been

Table 4: Questioned vs. Allowed Salary Costs for Universities Related to the NSF Two-Month Rule

University	Audit Report# and Resolution Letter	OIG Report Issue Date	Period Audit Covered	Audit Resolution Date	OIG Questioned Cost of NSF 2 month salary rule	Allowed by Audit Resolution	Sustained
Virginia Polytechnic Institute and State University	14-1-002	7/1/14	1/1/10-12/31/12	4/30/15	$1,456,716	$1,456,716	$-
University of Illinois—Urbana—Champaign	14-1-006	9/25/14	1/1/10-12/31/12	9/18/15	$52,584	$52,584	$-
Michigan State University	15-1-003	3/19/15	1/1/10-12/31/12	9/8/15	$913,210	$913,210	$-
University of Florida	15-1-004	3/31/15	4/1/10-3/31/13	9/8/15	$867,188	$867,188	$-
University of California—Berkley	15-1-012	3/31/15	4/1/10-12/31/12	7/20/17	$1,608,944	$1,608,944	$-
University of Wisconsin	15-1-014	3/31/15	4/1/10-3/31/13	9/25/17	$1,276,668	$1,276,668	$-
Indiana University	15-1-019	9/17/15	4/1/10-3/31/13	7/14/16	$744,458	$744,458	$-
Stanford University	15-1-020	9/30/15	1/1/10-12/31/12	10/13/17	$124,279	$124,279	$-
Florida State University	15-1-021	9/28/15	4/1/10-3/31/13	9/6/16	$444,966	$444,966	$-
Carnegie Mellon university	15-1-022	9/28/15	10/1/11-9/30/14	5/2/16	$108,819	$108,819	$-
University of Washington*	16-1-004	2/11/16	4/1/10-3/31/13	NA	$1,824,117	$1,824,117	$-
Columbia University	16-1-021	7/8/16	4/1/11-3/31/13	5/26/17	$774,976	$774,976	$-
Georgetown University	16-1-022	8/25/16	1/1/10-12/31/12	10/6/16	$9,825	$9,825	$-
University of Michigan	16-1-023	9/29/16	10/1/11-9/30/14	5/25/18	$2,242,477	$2,242,477	$-
Penn State University	17-1-001	3/6/17	4/1/12-3/31/15	9/15/17	$63,472	$63,472	$-
University of California—Davis	17-1-002	2/27/17	1/1/08-12/31/10	5/4/18	$1,810,627	$1,810,627	$-
				TOTAL	$14,323,326	$14,323,326	$-

**Anticipated Outcome - University of Washington audit report is currently unavailable*

Source: Data compiled from OIG Reports and Audit Resolution Letters as of October 2019: https://www.nsf.gov/bfa/responses.jsp.

informed by the NSF inspector general of the amount they questioned in costs and universities endured unnecessary bad publicity/media attention—when later, 90 percent of the questioned costs and related findings were not upheld. Because of this undertaking and the uncertainty of results, some universities will unnecessarily incorporate additional policies, procedures, or controls to mitigate the possibility of similar findings—adding administrative and faculty burden as well as costs to perform research.

NSF should be commended for providing a clear audit resolution process and transparency to their audit resolution information publicly and easily accessible. It should be noted that since the time period covered in Table 4, the NSF Office of Inspector General has discontinued the two-month rule as a recurring finding in the audits of universities. In addition, more proactive communication and coordination between the NSF OIG, NSF's audit resolution team, and the university community has helped to reduce differences in interpretation of other requirements in audits, as well.

However, not all agency inspectors general operate with such transparency or independence in regulatory interpretation.[61] Audits are also different from fraud investigations where the recourse of a university in disagreement with an inspector general is referred to the Department of Justice rather than the federal agency that is most familiar with their policy requirements and their intent. The other alternative is the possibility of going to court, yet the costs can be so prohibitive that universities opt for paying the fines and penalties or self-disclose. It can also result in personal liability to university administrators. Investigations for fraud rooted in instances where individuals embezzle or have personal gain are highly valued and ensure trust. Some investigations, however, may be more subjective and rooted in opinions of policy interpretation or the adequacy of documentation; these instances should have a recourse similar to the audit resolution process with the agency.

Reducing the Risk-Avoidance Stance Taken by Agencies and Universities

The release of the Uniform Guidance in 2014 reflected an understanding by OMB policymakers that research grant funds were increasingly being used to meet administrative compliance requirements. In fact, the preamble to the Uniform Guidance states: "This reform of OMB guidance will improve the integrity of the financial management and operation of federal programs and strengthen accountability for federal dollars by improving policies that protect against waste, fraud, and abuse. At the same time, this reform will increase the impact and accessibility of programs by minimizing time spent complying with unnecessarily burdensome administrative requirements, and so re-orients recipients toward achieving program objectives."

To reinforce this policy perspective, the Guidance later states more specifically: "Nonfederal entities' (performing universities) program managers must carefully consider the appropriate balance between controls and risk in their grant award programs and operations. Too many controls can result in inefficient and ineffective operations; managers must ensure an appropriate balance between the strength of controls and the relative risk associated with particular grant award programs and operations. Additionally, the benefits of controls should outweigh the costs. Nonfederal entities should consider both qualitative and quantitative factors when analyzing costs against benefits."[62]

61. Note: Audits are very different from Office of Inspector General investigations conducted under the False Claims Act and the recourse of universities to resolve differences of opinions in regulatory interpretation are severely limited. Investigations do not have an audit resolution process whereby the agency, who is most familiar with its policy can side with the interpretation of the university or have its own determination different from the OIG.

62. 2 CFR Part 200, Appendix XI, Compliance Supplement Part 6-Internal Control.

However, in practice, both federal research grantmaking agencies and universities themselves continue to be risk averse to potential critical audit findings. As a result, while OMB has encouraged greater flexibility and emphasized the importance of achieving program results, little innovation or progress has been made. For example, despite the flexibility of being able to take advantage of a more simplified methodology for alternatives to time-or-effort compliance requirements, many universities will wait until it has been tested and accepted by the audit community. And, some federal agencies continue to issue guidance related to "effort reporting" even though universities have a myriad of options that they can use in order to be compliant with the requirements as outlined in the Uniform Guidance.

Creating a Broader Framework for Burden Reduction by All Stakeholders

Over the years, there have been many recommendations from a wide range of stakeholders—the National Academies of Science, the National Science Board, professional organizations and Congress, among others—to reduce administrative burdens on research grants to universities. However, to date, action taken have done little to reverse the steady trend toward more time spent by academic researchers on administrative requirements. In the long run, this reduces the return-on-investment of tax dollars spent on research and development.

In a 2016 report,[63] the National Academies of Science, Engineering, and Medicine recommended the creation of a Research Policy Board to explore ways to substantially break down the silo approach to research grant reform efforts by engaging key stakeholders in a systemwide reassessment. This proposal was roughly analogous to a statutory requirement that periodically appears in the annual National Defense Authorization Act requiring a systemwide reassessment of the burdensome and complex defense acquisition system over a three-year study period.[64]

This recommendation was included in the 21st Century Cures Act of 2016. The Board was to have been put into place by OMB as soon as possible to ensure continued partnership, collaboration and advancement of the nation's research enterprise.[65] Members of this Board were to include the primary stakeholder groups and would provide a central, governing body whose primary focus is streamlining the regulatory framework for grants management that focuses on performance outcomes, not paperwork.

As outlined in the bill, the Board's purpose and responsibilities include:

- Thorough and informed analysis of regulations and policies
- Identify negative consequences of existing policies and make actionable recommendations for improvement
- Make recommendations of how the federal government can improve coordination of regulations and policy that impact research
- Create a forum for open discussion by all stakeholders
- Conduct ongoing evaluations and assessments of regulatory burden

However, to date, this Board has not been constituted.

63. *Optimizing the Nation's Investment in Academic Research: A New Regulatory Framework for the 21st Century,* The National Academies of Sciences, Engineering and Medicine, July 2016.
64. https://discover.dtic.mil/wp-content/uploads/809-Panel-2019/Volume3/Vol3_Summary_Letter-size.pdf.
65. P.L. 114-255, Division A, Title II, Subtitle D, Section 2034(f).

Recommendations

Recommendation Ten: OMB should consider playing a prominent role in setting goals, establishing deadlines and ensuring that agencies have valid business reasons to deviate from adopting a standardized approach to grants management among federal grantmaking agencies. If approved by OMB, these business reasons should be made publicly available that includes steps, if applicable, being taken by the agency to align with other federal agencies.

Recommendation Eleven: The audit community, especially federal inspectors general, should explore ways to become more engaged with university representatives and faculty researchers in order to rebalance its oversight and value towards the efficiency and effectiveness of research performance. This could include the identification of accounting practices, issuance of guidance that promotes consistency in regulatory interpretations among stakeholders, and business processes that reduce burden and institutional costs of conducting federal research.

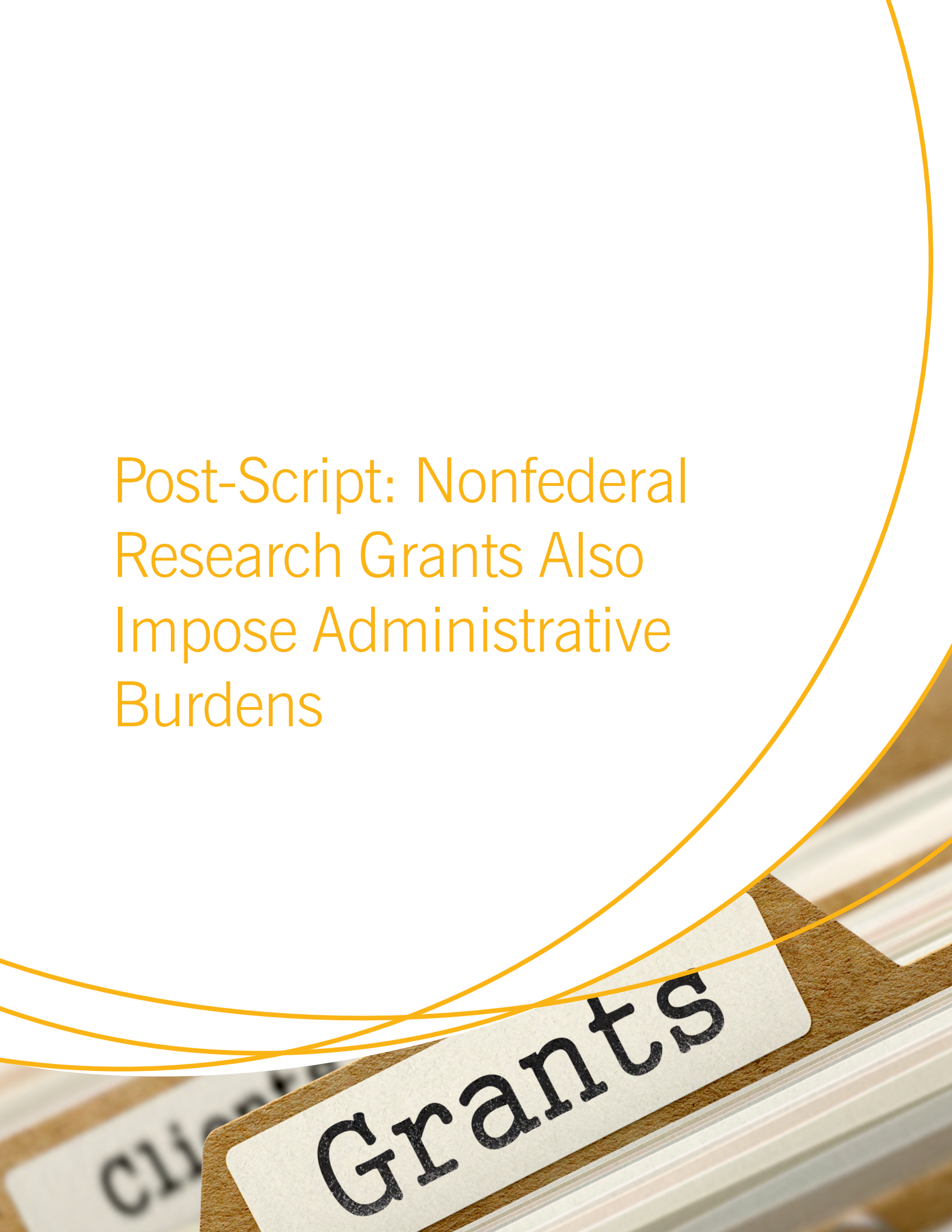
Recommendation Twelve: The audit community, especially federal inspectors general, should explore options for making distinctions between administrative noncompliance (unsigned paperwork for example) and fraud (intent to misrepresent for financial gain) in investigations. Any administrative noncompliance identified in an investigation should have the same recourse and process as an audit and go through a resolution process with the federal agency. This shift would require a new approach in audit community training and resources and emphasize fact gathering and information assessment that (1) can be performed in a way that retains auditor independence, and (2) recognizes that some level of risk tolerance can help optimize efficiency and effectiveness.

Recommendation Thirteen: The federal inspector general community, via the Council of the Inspectors General on Integrity and Efficiency, should explore ways to implement recommendations originally made in a 2016 report by the National Academies of Sciences, Engineering and Medicine (NAS). These recommendations could help to resolve issues regarding their inconsistent interpretation of agency policies and priorities with the agency before conducting formal audits of research universities. They should also use a risk-based methodology to identify universities as candidates for audits. The NAS report also offers other recommendations the inspector general community should consider. This includes an expanded and more transparent approach they use to report to Congress.

Recommendation Fourteen: Universities should review their own business practices to ensure each control is necessary, effective, and efficient. Internal audit offices and university administration should evaluate the costs of controls to ensure they do not outweigh their intended benefits, recognizing that some level of risk tolerance can help optimize efficiency and effectiveness.

Recommendation Fifteen: OMB should consider establishing the statutorily-mandated Research Policy Board to assess the administrative burdens in the federal research grants ecosystem and develop a long-term agenda for improvement by engaging all stakeholders.

Post-Script: Nonfederal Research Grants Also Impose Administrative Burdens



The Foundation Center, now managed by Candid,[66] was established in 1956 and currently serves as a hub for grantees who are interested in pursuing nonfederal funds. Similar to grants.gov, they try to be a central place for nonfederal funding opportunities; however, they also offer services such as training, grant writing, and data analysis to try and match the idea with the funder.

Candid is also attempting to standardize data elements across the nonprofit community to better inform donors of a foundation's mission, priorities, and performance. In addition, this goal of standardized data elements can be used by other foundations to increase collaboration on a common area of interest and with an intent to maximize impact. Candid has created a tiered ranking system[67] for nonprofits to publicly share information about their organization, not only with the public but other foundations as well. While standardization related to grant terms and conditions may be years away given there is not a central governing body, Candid is making important steps in transparency and standard data elements where possible.

The challenges discussed in this report are not unique only to federally funded research projects. As the federal budget for funding basic research has not significantly increased and the funding rate remains less than 25 percent, researchers have pursued alternative funding sources, including from nonfederal entities (e.g., foundations, private industry, not-for-profits, institutes, and societies). Grantee universities and researchers have found that similar roadblocks and increased number of rules also exist with nonfederal sponsors.

The Government-University-Industry Research Roundtable (GUIRR) of the National Academies of Sciences, Engineering, and Medicine was created in 1984 in response to the report of the National Commission on Research. This report called for an institutionalized forum to enhance communication among the top leaders of government and nongovernment research organizations. Through the work of GUIRR and other organizations, it is documented that in many cases, the nonfederal sponsors present even greater challenges in administrative burden, due to the increased variation with each nonfederal sponsor that are based on the needs and priorities of that particular organization.

For example, when reviewing the proposal submission process for three nonfederal sponsors, the following results are:

- The Carnegie Corporation accepts letters of inquiry on a rolling basis without deadlines and does not seek, and rarely funds unsolicited grant applications. A letter of inquiry is submitted via Carnegie's website and may be invited for full proposal submission.
- American Cancer Society accepts letters of intent at various deadlines and does allow unsolicited grant applications. A letter of intent is submitted via Altum Proposal Central and is then invited for full proposal submission where funding is based on investigator-initiated, peer-review process.
- American Heart Association accepts proposals at various deadlines and does allow unsolicited grant applications. A proposal is submitted via Grants@Heart, which is a web-based system for application preparation, submission, peer review, and awards management.

Another example of variation among nonfederal sponsors can be found in the reporting requirements. The Gates Foundation requires submission of the final report 60 days after the end of the grant term, has specific forms and very detailed reporting requirements, which differs greatly from the reporting due dates, forms, and requirements of the Robert Wood Johnson Foundation.

66. https://candid.org/.
67. https://learn.guidestar.org/hubfs/Docs/2019-GuideStar-Profile-Standard.pdf.

Nonfederal sponsors often severely limit the amount of indirect costs that a university can recover in the performance of the research which increases the university's investment in the research. Many foundations also refuse to negotiate award terms which can put grantee universities in a precarious position when the terms of the award may conflict with their own university policies and practices. The most common areas of incongruence are around intellectual property, conflict of interest, and audit.

The same questions that are posed for federal sponsors also apply to nonfederal sponsors:

- What are the catalytic impacts when the signals being sent are that administrative burden (e.g., paperwork) for compliance is seemingly more important than the research itself?
- Is there a direct and positive correlation that indicates having more rules and regulations result in higher-quality research? Or does having more rules and regulations result in just that, having more obstacles without meaningful benefit to either the rule makers or grantees who have to implement and adhere to the rules?
- How much of each nonfederal dollar spent is attributed to administrative costs that do not affect performance outcomes?

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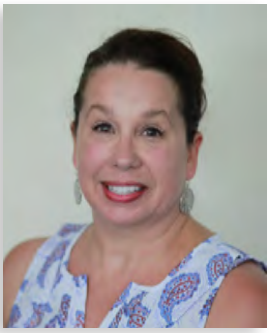

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