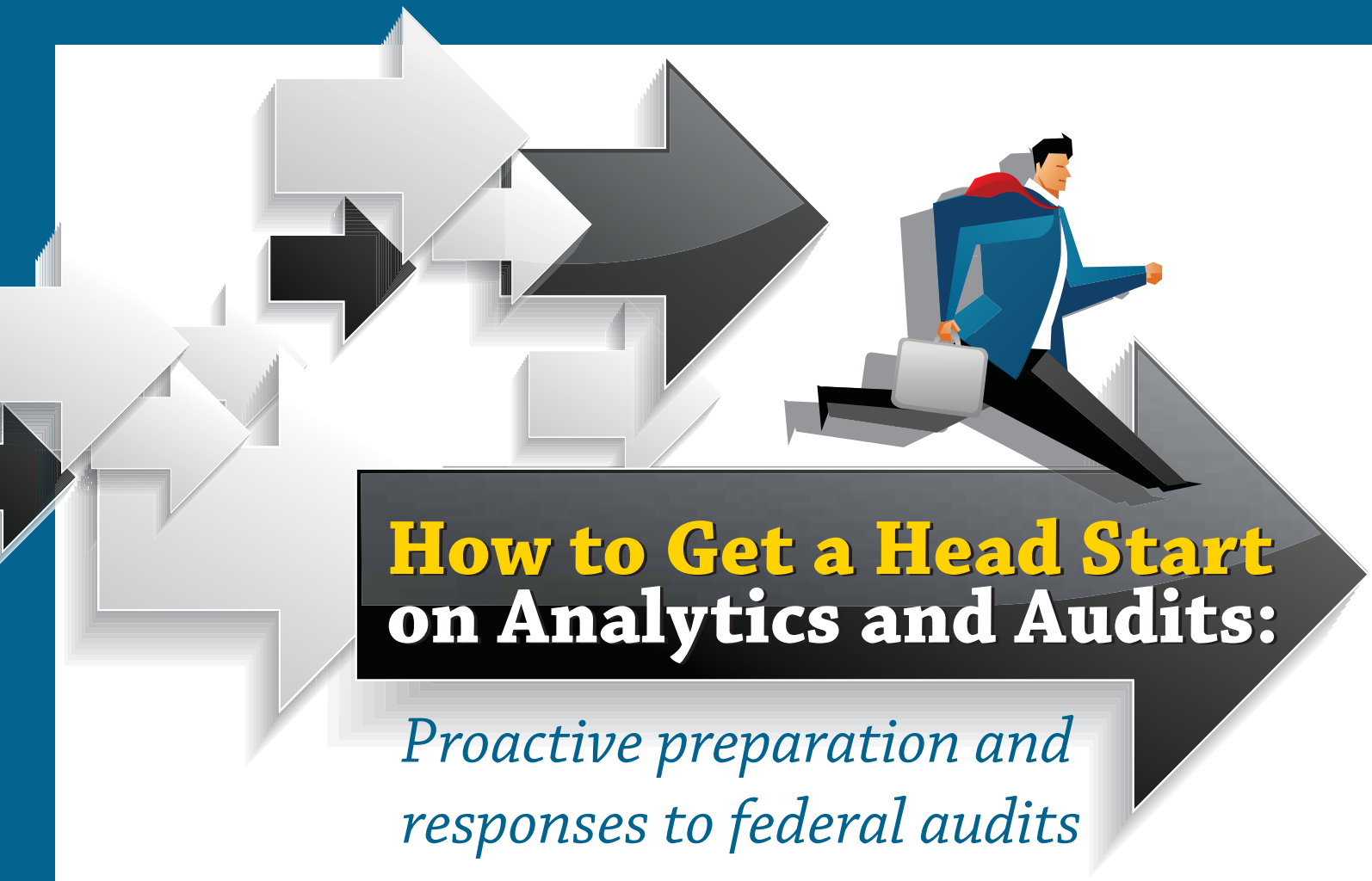


How to Get a Head Start on Analytics and Audits:

Proactive preparation and responses to federal audits

By Anne Sullivan

There's a new wave of data analytics transforming the way auditors can track, review, and report financial documents, providing a new level of sophisticated assurance. Paving the way for the data-driven federal grant and contract audit field, the National Science Foundation Office of General Inspector's (NSF OIG) use of analytics is cutting edge, changing the way organizations must react to, plan for, and support audits.

Specifically, this sophisticated practice is being utilized for reviewing grant expenditures and ensuring fiscal stewardship of NSF funds. As a result, many grant recipients have started emulating the NSF OIG's data analytic methodology by developing their own data-based monitoring procedures and tools for proactively managing grants. The NSF OIG's recent findings from its first wave of data analytic audits provide insights on how to prepare for this type of audit, as well as key considerations for organizing institutional responses. NSF has also communicated a continued focus on reviewing accountability of awardees in its annual Audit Work Plan **(Source:** http://www.nsf.gov/oig/2015auditplan.pdf**)**.

While the NSF OIG may be the pioneer leading the way on analytics in grant audits, other federal agencies are likely not far behind in enacting similar methods. Furthermore, it is an opportune time for federal grant recipients to consider how to improve controls, oversight mechanisms, and roles and responsibilities in light of emphasis on internal controls in the Office of Management and Budget's (OMB) Uniform Guidance.

Recent NSF OIG Audit Findings

Throughout the award lifecycle, there are dozens of financial and regulatory risks — and your institution must consider how to effectively identify and monitor those risks. To start off, there are a few key questions you should ask:

- What are the most high risk areas for grants administration?
- How would we set up automated controls or monitoring mechanisms to identify risky patterns or to detect transactions that may spark heightened scrutiny?

But before thinking about the second question, consider some of the areas that have been highlighted as findings in recent NSF OIG data analytic audits.

The NSF findings published in recent reports correspond to unallowable, unallocable or unreasonable costs, or inadequate documentation. In particular, some of the recurring questioned costs in draft audit reports included transactions or expenditures related to the following:

- Senior personnel salaries and the 2/9th rule
- Summer salaries
- Cost sharing
- Cost transfers
- Equipment
- Participant support costs
- Travel (meals, conferences, and foreign travel)

In the new data analytic approach, auditors can run transactional reports to diagnose questionable spending patterns, quickly detecting costs that are more difficult to support as direct charges or tend to require more supporting documentation to prove allowability or allocability.

Preparing for the Data Analytic Audit Process

The steps of a federal audit may follow a flow similar to diagram. Based on experiences with previous data analytics audits, it is advisable that grantee institutions have their own audit-response strategy mapped out during each audit phase in order to be proactive and collaborative. While the NSF audit approach is still relatively new in the grant environment, institutions can glean important lessons about the role of the grant recipient during the audit, ensuring the most efficient, collaborative, and (hopefully) favorable experience.

A data request will likely include a data download of all general ledger transactions posted to NSF awards over a specified period of time, and the auditors will then review 100 percent of the transactions provided using automated tools. We have learned from the NSF OIG that the types of activities conducted during their Data Analytic Audits include the following: **(Source: Baker, Brett. Assistant Inspector General for Audit, National Science Foundation. "NSF OIG and Data Analytics." NCURA 56th Annual Meeting. Washington Hilton, Washington, DC. 12 August 2014.)**

- Identification of systems and anomalies between databases
- Identification of key controls
- Changes in behavior over time
- Drawdown patterns such as spikes, spending down grant funds, significant budget reallocations
- Composite burn rates of the institution
- Tests including linking databases, computed fields, invalid dates, duplicates, etc.

In order to be prepared for what an auditor would be seeing during fieldwork, the auditee can run some queries to "test" their own data set and identify any potential red flags or questionable transactions that may be flagged during the NSF's audit. For example, organizations can analyze any expenditures that post later in the award period or a significant volume of cost transfers in a certain period of time.

What can you learn about those transactions prior to the auditor asking the same questions?

Consider gathering supporting documentation or building an understanding of the circumstances that led to patterns of spend, as there are likely explanations (and perhaps some documentation) to justify them. One or two dedicated resources may be warranted to analyze the materials and data provided to the auditors, helping prepare for the types of questions that might later be raised.

During the audit fieldwork and post-fieldwork follow-up, an auditee has the opportunity to present its case for supporting certain questioned transactions. Any work done early in this stage may be advantageous down the line. Institutions that are successful in resolving questioned costs had a point person or team analyzing and investigating said costs, working with the department(s) and PI(s) to gather supporting documentation, and developing concise descriptions and justifications for the appropriateness of each charge. Not only is it critical to document a well-developed response, but the institution should be prepared to articulate its policies and procedures that demonstrate proper stewardship of federal funds and how the policies align with federal regulations.

Proactive Management and Monitoring

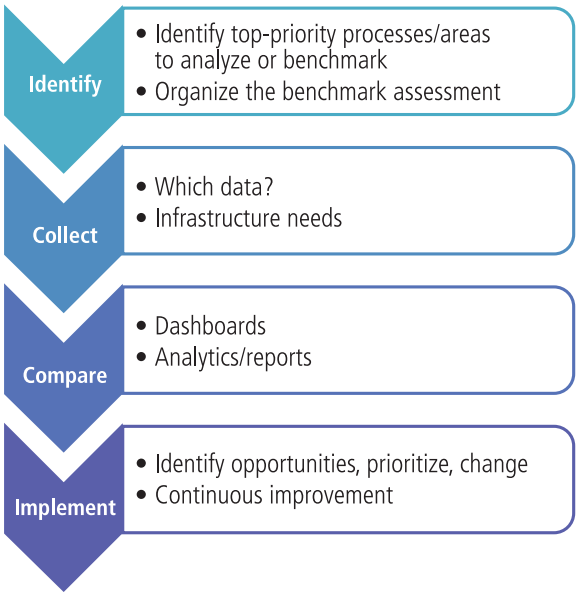
Even if an institution is not selected for an NSF Data Analytic Audit, it does not mean it should sit idly by and not gain a head start for this new wave of analytics. It's possible that other federal agencies align their audit

approaches with the NSF's in order to automate the audit approach and increase efficiencies given limited audit resources. Many of the themes from audit findings give grantees takeaways on areas for improvement.

Consider some of the key questions below, and determine whether or not your institution has implemented practices that would hold up in an audit and could utilize data analytics to help identify and mitigate risks.

- Policies and Procedures: Do you have formal, written policies and procedures that are up to date with federal guidance?
- Documentation: Do processes require adequate documentation for questionable spending patterns or red-flag expenditures?
- Awareness: Are PIs and other department personnel aware of the sensitivities and requirements for research compliance?
- Screening: Have you determined the appropriate level of pre-review that should be performed before a transaction can be processed?
- Monitoring: What roles, internal controls and systems support your monitoring program?
- Causes: Can you determine the "root causes" driving challenges in high-risk areas such as cost transfers or effort reporting?

The internal use of data analysis should be encouraged across your research operations in order to monitor compliance, strengthen internal controls, and detect or prevent wasteful spending. Internal data analytics can help an organization self-assess and better understand compliance risk at the institutional level — or even at the department or grant level. Targeted benchmarking or data review focused on specific compliance areas can help detect departments that may have higher risk profiles.



Sample Metrics Used

- Effort reporting (% completion)
- Cost transfer volume (# and $ volume)
  - ✓ Late salary transfers (# and $ volume)
- Sponsor accounts in overrun status (# an $ value)
- Delinquent financial closeouts
- Expenses past period of performance
- Expired cost sharing accounts with unexpended balance
- Active cost sharing accounts with low expenditure rate
- RCR training overdue

Thus, a best practice and proactive strategy for using data to manage research compliance and monitor for questionable expenditures includes the following components: Identifying, collecting, comparing and implementing.

During the "Identify" step, consider the stages of a project lifecycle and the various financial or regulatory risks during pre-award, post-award and closeout. Focus on data points an NSF auditor would analyze with its analytic tools in order to "Collect" metrics for internal data analysis. There are several data points that you should be collecting and the take steps to "Compare" your metrics against target levels to help gauge risk. Finally, it is in the "Implement" step when institutions should focus efforts to reduce and minimize these possible risks.

As institutions get to work preparing for these data-driven audits, a litany questions will surely arise. But stay the course and focus. Keep a wish list of metrics that you consider to be most useful for self-monitoring, and consider how your systems or databases can be leveraged in capturing and analyzing the data. It's important to prioritize; with a workable and strategic plan in place, data analytics will no longer be intimidating, but will become just a normal part of your process. N

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