



DIGITAL AUDITING:

Modernizing the Government Financial Statement Audit Approach

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We are in a “wired world” with information of all shapes and sizes available 24/7. All levels of government have substantially invested in modernizing information technology (IT) systems and service delivery models to take advantage of dramatic IT advances. However, have auditing techniques modernized in a similar fashion?

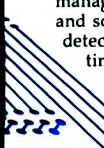
The pace of change in IT system modernization is remarkable. Federal agencies reported spending \$1.5 billion annually on the operation, maintenance, and upgrades of numerous accounting systems across the federal government's various IT platforms.¹ Over time, additional tens of billions have been invested in program systems that feed information to the accounting systems and constitute the financial management systems as a whole.² While there is still work to do, currently, across a range of government organizations, we see modern IT environments, integrated financial management and business systems, and sophisticated preventative and detective controls that help ensure timely, accurate, and reliable reporting to internal and external users.

On the other hand, many fundamental techniques used in today's typical government financial statement audit are similar to those used 20 years ago. Although most audit work today is computer-based, such as through the use of word processing and spreadsheet applications, work paper storage systems, and statistical sampling, the audit approach is relatively unchanged. For example, a government financial statement audit today and two decades ago typically consists of sampling transactions at set intervals throughout the audit period, with the results used as audit evidence to conclude on the operating effectiveness of internal control over financial reporting and to form an opinion on the fair presentation of the agency's financial statements. Is there a better way to approach

a government financial statement audit to take greater advantage of modern financial and business systems? This article answers that question and highlights four actions to consider in transitioning to a digital audit environment.

Modernizing Typical Audit Procedures

To illustrate the need to modernize the government financial statement audit process, let's examine two scenarios in a typical audit. We will talk about the traditional approach (circa 1990, for which parts are currently in use today); the current computer-assisted approach; and the digital approach that utilizes analytic tools.



	Scenario 1: Obtaining Data from an Accounting System	Scenario 2: Testing Journal Entries
TRADITIONAL APPROACH	The audit team requests certain information through an agency-designated audit coordinator, who passes the request to a point of contact in IT. An accounting system IT specialist generates a report. Often the auditor's request is not for a standard report, so the IT specialist develops a custom report with data fields and parameters requested by the auditor. Once generated, the report goes back to the audit coordinator to verify that it is what the auditor requested, and then to the auditor. This process can be further complicated if there are miscommunications between those involved in obtaining the report (e.g., the audit coordinator, IT specialist, or other agency managers), overlooked data fields, or inaccurate parameters. Also, the auditor may have difficulty verifying completeness if the information cannot be reconciled to related information from the agency's accounting system. In summary, this process is labor intensive, does not always result in complete and reliable information, and can include idle wait time.	The auditor requests a copy of the manual journal entry log, which the auditor reconciles to the journal entries recorded in the accounting system. Auditors then select sample transactions from the manual journal entry log, and request paper copies of the journal entries (including manual signatures on hard-copy documentation). Agency accounting personnel retrieve paper copies of journal entries from filing cabinets, and make photocopies of the documents, which are provided to the auditor.
COMPUTER-ASSISTED APPROACH	Many current systems and report-writing applications used by auditors and agency personnel rely on extraction of data through a common database programming code (e.g., SQL) at set intervals throughout the year. From an auditor's standpoint, this process involves extracting data directly from agency financial management systems, often with limited assistance from agency personnel. Most of the common database programming codes are found in today's commercially available report writing software packages. These custom reports and queries are run using a series of commands to "read" the agency's accounting system, and "write" the data into a file, such as a text file or a file that can be opened in Microsoft Excel.	Many of today's financial management systems include automated reports listing all recorded journal entries. Auditors are able to identify journal entries for testing, and request supporting hard copy or electronic documentation for review.
DIGITAL AUDITING APPROACH	Using business intelligence tools, auditors are starting to develop mechanisms that can, in real-time, analyze agency financial transactions as they are recorded using advanced routines that search for transactions or events falling outside expected ranges or containing certain attributes of auditor interest. Using the agency's electronic data repository, containing supporting documentation of all transactions, within minutes of the transaction being recorded, auditors can review the supporting documentation and identify errors or gaps in the agency's internal controls. The auditor could track either exceptions over a period of time or immediately connect with the agency's personnel to discuss trends or individual transactions that present internal control risk. There will be no need for custom reporting or periodic report-writing software queries. Auditing would be continuous and real-time.	Leveraging sophisticated tools, such as OLAP (online analytical processing), which can be found in some of today's spreadsheet applications, the auditor connects remotely to a database server to analyze large populations of both manual and automated journal entries from the financial management system. Once the connection to the database (sometimes referred to as a "cube") is established, auditors can customize their search to evaluate the various journal entries by facts and dimensions (e.g., creator, monetary amount, general ledger account) to identify and focus testing on specific risk criteria. Again, as with scenario 1, this approach would essentially eliminate the need for hard copy data retrieval and analysis.

Through digital auditing techniques, audit-testing is streamlined to focus on higher-risk transactions. Auditors can overcome a number of inefficiencies found in today's auditing approaches, which rely heavily on auditor information requests working their way through an agency's organization, or waiting for hard copy documentation to be located. Auditing can be continuous and more efficient, while providing greater coverage and more timely and useful information to management as all transactions can be evaluated at some level.

Getting to the Data

There are many benefits to modernizing the audit approach for both the auditors and audited organizations. However, obtaining data in a format necessary to take advantage of a digital auditing approach may be a significant challenge for some government organizations. One of the most common barriers involves capturing data from different systems, whether different accounting system modules, subsidiary ledgers or "cuff" systems, or different accounting systems used by agency components. System incompatibility may make it difficult for auditors to evaluate data in a meaningful way from these separate systems alongside data from the agency's core financial management system.

A common approach for digital auditors to overcome this challenge involves establishing robust and flexible data warehouse architecture. A data warehouse is a central repository of data created by integrating data from one or more disparate sources.³ Data warehouses store current and historical data in a manner that facilitates easy and flexible comparison of similar data fields and information. Once data needed for the audit is extracted and loaded into the data warehouse, audit tools can be applied against this data to perform risk assessments, obtain audit evidence, understand trends, and provide value-added feedback to the agency and stakeholders.

Data Integrity

Any time data is used for decision-making or obtaining audit evidence, quality (meaning reliability and completeness) is the primary consideration. Many risks to data integrity exist; as a result, using technology plays a vital role when data from disparate sources is transformed into a single data warehouse. Data integrity can be addressed in a digital audit environment in a variety of ways. The completeness of extracted data can be electronically tested to ensure against corruption of the data fields and records by comparing automated hash and



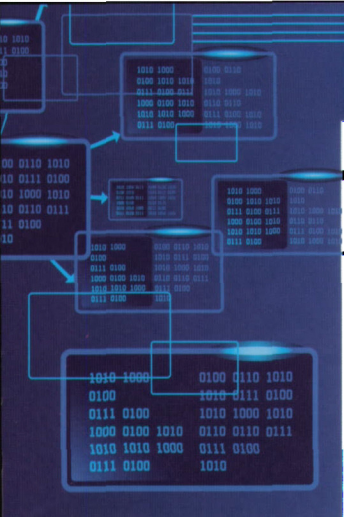
batch totals against the extracted data. Additionally, account balances can be totaled and compared to financial statement balances. Once auditors have determined the data set in the warehouse is complete, the information can be routinely used to support audit work focused on reliability, eliminating the need to individually perform tests of populations to ensure completeness.

Benefits of Digital Auditing

Digital auditing supports advanced continuous monitoring and continuous auditing programs, expanded forensic and recovery auditing capabilities, and sophisticated data analytics and business intelligence efforts,⁴ as highlighted in Figure 1.

Figure 1: What are some of the benefits of adopting digital auditing techniques?⁵

Enhanced effectiveness:	Additional business insights:	Greater efficiency:	Better detection of fraud, waste, and abuse:
Increased consistency among audits by using common tools	Comparison of results between funds and agency organizational units	Easily view transaction trends across an organization	Identification of hidden relationships between people, organizations, or events, such as ownership of companies doing business with the organization
Identification of internal control gaps and deficiencies that could lead to circumvention and/or exploitation	Increased insights into use of IT system functionality	Consider and analyze large volumes of transactions in far less time	A means to identify and analyze suspicious transactions
Automated fraud detection and prevention activities	Identification of higher-risk transactions based on deviations from expected business processes and relationships	Much more cost-effective than using traditional sampling techniques	The potential to continually monitor fraud threats and vulnerabilities
More detailed audit findings that fully identify root causes		Reduced surprises by more quickly providing testing results to management	



Transitioning to a Digital Audit Environment

Digital auditing is not just a technology-based effort. It involves changing the expectations of what is included within an audit, and adjusting auditors' knowledge, skills and abilities.⁶ Evolution of tried and true audit approaches represents cultural transformation both within the audit organization and the audited entity. Some actions that should be considered as the audit profession transitions to a digital audit environment include:

Action 1: Encourage organizations being audited to implement a data standardization framework

A data standardization framework drives data uniformity and comparability. By focusing on standardizing data elements across the government and/or agency, and integrating that framework into the core financial systems⁷, auditors and agencies would be able to take advantage of the many benefits gained through digital auditing, such as greatly

improving day-to-day data reliability and reducing the need for costly data reconciliation. As the AGA's recent research report, *e-Reporting*, concluded, "standardization of data elements... is paramount."⁸

Action 2: Stay current with technology investments

All levels of government continue to make significant investments in accounting and financial management systems. Are audit organizations keeping up with these technology investments? If audit organizations don't have the same technology available to leverage agencies' advanced accounting and financial management systems, auditors may have difficulty in making their audits sufficiently comprehensive and focused on the most significant areas of risk.

Action 3: Evaluate data security and information protection risks

Governments are mindful of data security and the urgent need to maintain strict controls over information access. President Barack

Key Steps in the Phases of a Digital Audit

How do we make this happen? Figure 2 illustrates an overview of steps included in the phases of a digital auditing process. These steps show how auditors can integrate data analytics into their audit approach and analyses.

Figure 2: Key Steps in the Phases of a Digital Audit

PLANNING

- During the planning phase, the audit team meets with agency personnel to gain an understanding of the methods of extracting data from the agency's systems. Agreed-upon data extraction methods will be used by auditors to isolate transactions and other relevant data in the financial management system for use in audit testing.
- The auditor plans audit routines for use on the extracted data. This step is critical to ensure the data extraction phase enables auditors to perform planned audit routines.

EXTRACTION

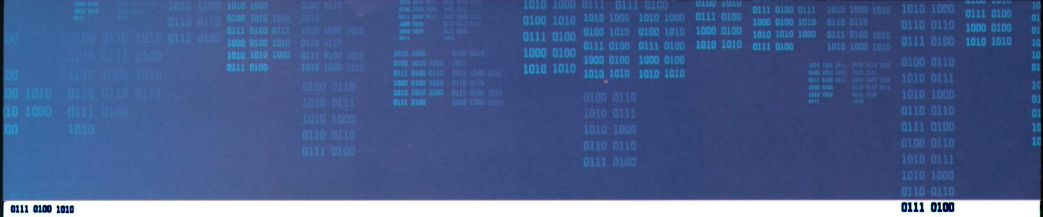
- During the data extraction phase, targeted data is copied from relevant tables within the agency's financial management system, which includes program systems supporting financial statement balances.
- The auditor's data extraction programs are designed to run at a low priority so as not to adversely affect the agency's network or system performance.
- Data is then transferred to a secure audit environment for analysis by the auditors.

ANALYSIS

- During the analysis phase, several automated data validation checks and analyses are performed to verify that extracted data in the secure audit environment represents data extracted from the financial management system.
- Numerous audit routines, identified during the planning phase, are performed.

REPORTING

- In the reporting phase, audit documentation generated by the various routines is evaluated and results communicated to agency management.
- The results of the routines are used to determine whether follow-up audit work is deemed necessary.



Obama stated, “the cyber threat is one of the most serious economic and national security challenges we face as a nation.”⁹ The U.S. Office of Management and Budget has issued guidance to federal agencies on required steps to maintain protection of sensitive agency information, and comply with a variety of federal laws governing information protection.¹⁰ Efforts to embrace digital auditing methods will need to fully adhere to these policies and laws.

Action 4: Invest in your auditors

Digital auditing will require an audit community with a broader base of knowledge and insight. Auditors and audit organizations of the future will require experience, knowledge, and continuous training in a diverse array of fields, such as advanced statistics, software applications, advanced data analytics, predictive modeling, information security and system coding.¹¹ They will have to be able to think further and further outside of the box. The current workforce will need additional training, and the target future workforce will look much different than today’s workforce.

Closing Remarks

Federal, state, and local governments face extreme financial pressures today. Governments are on an unsustainable fiscal path and face harrowing budget choices that will eventually lead to transformational change in their roles and operations.¹² The status quo is not a viable option for anyone.

Embracing digital auditing is a necessary investment to move auditors to new and evolving techniques that modernize government auditing by making full use of current and emerging technologies. We are in an information age and the exponential growth of data brings both challenges and opportunities to overhaul traditional sampling-based auditing approaches and fully leverage technology. Digital auditing provides a window to view trends, issues, and relationships across a wider expanse of data, and provide more meaningful and insightful observations to government leaders and stakeholders for improving government performance.

Are modernized government financial statement audits achievable? Absolutely! However, getting there will take dedicated investments, concerted effort, executive-level commitment, and strong partnerships with agency management, who will likewise greatly benefit from this evolution. In doing so, we will enable our profession to move into the future and add even greater value to managing the cost of government and providing the highest levels of accountability and transparency to the American public. ■

Endnotes

1. Using FY 2012 and FY 2013 data available on the Federal IT Dashboard (www.itdashboard.gov), based on data sorted by the primary business reference model (BRM) service code 124 (accounting).
2. Federal IT Dashboard (www.itdashboard.gov)
3. “Smart Use of Data Mining is Good Government and Good Business,” by Jeffrey C. Steinhoff, CGFM, CPA, CFE, and

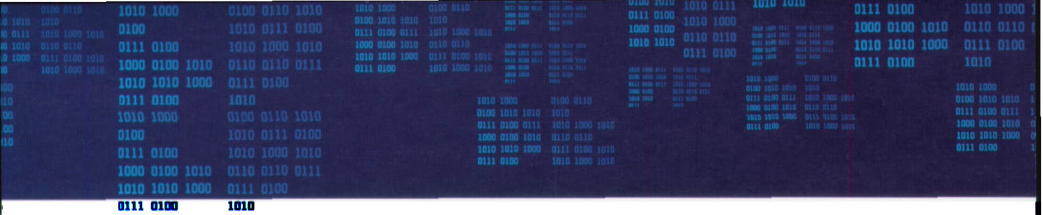
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5. “What is Driving Continuous Auditing & Continuous Monitoring Today?,” KPMG Government Institute, 2010
6. *Ibid*
7. “Building Public Trust through Open Government Electronic Reporting: We’ve Only Just Begun,” by Andrew C. Lewis, CGFM, CPA, CIPP/G, Ryan Rominiecki, CGFM, CPA, and Jeffrey C. Steinhoff, CGFM, CPA, CFE, and CGMA, *AGA Journal of Government Financial Management*, Winter 2012
8. “e-Reporting,” by William A. (Billy) Morehead, Ph.D., CGFM, CPA, and Daniel J. Murrin, CGFM, CPA, *AGA Research Series*, July 2012
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11. “Leveraging Data Analytics in Federal Organizations,” by Helena G. Sims and Steven E. Sossei, CPA, *AGA Research Series*, May 2012
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