

Rising to the Audit Analytics Challenge

How to Prioritize Efficiency, Accuracy, and Value



Table of Contents

Introduction	3
Overcoming Obstacles to Successful Adoption of Data Analytics	4
Challenge 1: Budget Barriers	4
Making the Case for Allocating Budget to Advanced Analytics	5
Challenge 2: Differentiating Between High-Code vs. Low-Code/No-Code Audit Analytics	7
What to Look for in Low-Code/No-Code Audit Analytics	7
Two Use Cases for Applying Analytics Automation in SOX and Internal Audit	9
SOX Use Case: User Access Review	10
Internal Audit Use Case: Procure-to-Pay	10
Disrupting the Status Quo to Provide Value to the Business	12
About the Authors	13
About AuditBoard	14

Introduction

In today's volatile risk landscape, [advanced analytics](#) — **the autonomous or semi-autonomous examination of data or content using sophisticated techniques and tools** — are highly useful for helping businesses effectively identify, mitigate, and respond to emerging risks. With so much data digitally stored across the organization's various entities and departments, forward-thinking audit teams are capitalizing on cutting-edge technologies to test their controls and assess and evaluate their organization's risks in a more efficient and accurate manner to support better business decision-making.

By the numbers:

- **60% of internal audit teams use data analytics** (Chartered Institute of Internal Auditors and AuditBoard's [Embracing Data Analytics: Ensuring Internal Audit's Relevance in a Data-Led World](#)).
- **68% of CAEs would invest in more analytics if they had the resources** (The Institute of Internal Auditors' (IIA) [2022 North American Pulse of Internal Audit Survey](#)).
- **Over 60% of SOX compliance programs use an audit management solution or GRC platform to enable compliance, and three out of four organizations are seeking opportunities to further enable automation** in their program ([Protiviti's 2023 SOX Survey Report](#)).

While advanced analytics have a proven host of benefits when leveraged effectively, adoption levels are still not entirely uniform across the industry. This may be due to resource constraints as audit and SOX teams are being asked to reduce costs, as well as the ease and familiarity of sticking to the “status quo” of executing audits the way they have been done for decades. Moreover, most internal audit teams lack familiarity with using analytics to automate their audit and SOX workflows, and often don't know where to start — even if they have access to an analytics solution.

This guide will examine the challenges audit teams face when attempting to incorporate advanced analytics into their work processes — and why audit functions must strive to overcome these challenges to stay relevant. We will also take a deeper dive into two primary use cases that are excellent places to begin integrating analytics automation into your SOX or internal audit workflows. **By embracing advanced analytics, forward-thinking internal auditors become better equipped to manage their audit and SOX processes with more efficacy and efficiency**, paving the way toward more insightful and impactful business decision-making.

Overcoming Obstacles to Successful Adoption of Data Analytics

In the pursuit of leveraging advanced analytics to automate and improve audit or SOX processes, auditors often come up against **two common challenges: 1) navigating budget constraints that hinder their ability to invest in the necessary technology solutions, and 2) differentiating between high-code software solutions and low-code/no-code analytics solutions.** While these obstacles may seem daunting, there are practical ways to overcome them and unlock the transformative potential of advanced analytics.

Challenge 1: Budget Barriers

While many auditors understand advanced analytics can benefit their business, the most common barrier to effectively leveraging analytics is lack of budget for technology: either a legacy enterprise tool or a modern data analytics solution. We describe these technologies in detail below.

- 1. Legacy enterprise software.** Legacy enterprise solutions are built using traditional, high-code computer programming, meaning there is a significant learning curve for audit users before they can use the software as intended. Consequently, businesses that invest in legacy tools typically need to hire additional audit headcount whose job is to become a “super user” of the tool, enabling the rest of the audit team to use it. As a result, legacy software solutions can be expensive investments.
- 2. Modern data analytics.** Modern data analytics refer to the cloud-based, low-code/no-code programming solutions that entered the market as superior analytics solutions designed for data scientists and business users. While modern

data analytics have more features than what SOX and internal audit users typically need, they have become a popular option among audit professionals due to their graphical user interface and drag-and-drop features — which translate to greater accessibility and ease-of-use in comparison to legacy enterprise tools. At the same time, modern analytics solutions can range from expensive, “best-in-breed” solutions with many extra features to more cost-effective solutions purpose-built for the teams that use them.

As CAEs grapple with increased pressure to maintain or reduce budgets in the current economic climate, many audit teams have found themselves stuck between a rock and a hard place when it comes to investing in advanced analytics. On one hand, maintaining or reducing costs is a top priority. **On the other hand, managing more audit projects and increasing SOX assurance demands is nearly impossible without 1) increasing headcount or 2) employing modern technology.** Getting stakeholder support for investment in audit analytics is crucial, and the following section breaks down three ways to make a compelling case.

MAKING THE CASE FOR ALLOCATING BUDGET TO ADVANCED ANALYTICS

As any auditor can attest, it is nearly impossible to perform a full-scope population test without technological assistance. While investing in an advanced analytics solution can be expensive, the reality is **auditors need technological support to perform their day-to-day jobs effectively.**

As your audit team considers how to allocate its available resources for the upcoming year, it is critical to add a low-code/no-code data analytics solution to your list of potential investments. This is especially important if your team is considering investing in a legacy enterprise solution or hiring additional headcount in the face of more compliance requirements and audit projects. The time savings and benefits of a low-code/no-code data analytics solution are far too significant to overlook.

We've collected three ways to make the case for investing in a low-code/no-code data analytics solution to help you manage heavier audit workloads and increasing SOX assurance demands.

1. Technological Advancement.

The advancements in artificial intelligence (AI), robotic process automation (RPA), and low-code/no-code technology over the last five years have improved the automation capabilities of modern data analytics solutions, enabling auditors to perform full population testing with greater **efficiency** and **accuracy** than manual sample testing. In addition to being designed for usability, these advanced analytics options are available to anyone who can successfully persuade their Head of Audit and/or SOX to invest in them. The biggest draw of utilizing these modern analytics is that auditors can now spend **substantially less time to obtain more accurate and meaningful results.**

The benefits of modern data analytics are evident at the process level. Take, for example, organizing and preparing evidence for testing. This time-consuming process typically requires a significant amount of data cleansing up front that involves the manual consolidation and deconsolidation of many spreadsheets, which is where human errors commonly occur. These spreadsheets are then sent out to reviewers for verification against a master spreadsheet, another task subject to manual error.

Modern data analytics software expedites this process significantly by automating the merging and joining of data. Removing the human element not only saves auditors precious time, but also improves data accuracy.

2. Winning the Talent War.

Because a better way to test now exists, it has become harder and harder for audit departments to justify not evolving in light of the continuing [war for talent](#). To remain competitive and relevant, forward-thinking audit departments are focused on recruiting and retaining the next generation of audit talent — especially technologically adept talent. According to [Protiviti's 2023 Next-Gen Internal Audit Survey](#), fewer than six in 10 internal audit functions, on average, have access to the talent they need across 12 identified “next-gen” internal audit competencies.

As smaller audit shops compete with larger firms for promising new hires, being able to offer the experience of using a “next-gen” data analytics solution on the job is becoming a competitive advantage. The best and brightest internal auditors will be enticed by the opportunity to learn valuable technical skills that can help advance their careers in the long run.

3. Regulatory Pressure.

Regulators as well as standards-setting bodies like The IIA are aware that technology to perform more accurate, full population testing now exists — and are putting pressure on CAEs to incorporate modern data analytics into their internal audit functions.

Notably, The IIA is embracing these technical advances and encouraging the use of modern technologies to support internal audit processes. **In fact, The [IIA's proposed Standards](#) devote an entire section to the importance of enabling technology as a key internal audit resource.** Under Domain IV. Standard 10.3, the CAE must ensure the internal audit function has appropriate technology to support the internal audit process.

Specifically, the CAE should **“regularly evaluate the technology used by the internal audit function and pursue opportunities to improve effectiveness and efficiency.”**

When considering implementation and evidence of conformance, Standard 10.3 specifies examples of such technology as:

- **Audit management systems.**
- **Process mapping applications.**
- **Tools that assist with data science and analytics.**
- **Tools that assist with communication and collaboration.**

Use of these technologies is also supported by Standard 10.1 Financial Resource

Management, which includes acquisition of technology resources, and Standard 8.4 External Quality Assessments (EQAs), which requires EQAs to assess the internal audit function's use of the above-described tools and technologies. Moreover, the results of these EQAs must be reviewed by the Board of Directors, and the assessment team must include at least one individual with an active Certified Internal Auditor (CIA) designation.

In short, regulators have removed any doubt or confusion around the necessity of embracing automation technology by making specific recommendations for the types of technologies auditors should use to support their processes.

Challenge 2: Differentiating Between High-Code vs. Low-Code/No-Code Audit Analytics

A CAE's worst fear is making an investment in a technology solution only for it to get shelved months down the line due to low adoption rates and being too complex for day-to-day use. This problem is especially true of legacy enterprise tools, which were programmed by developers who manually wrote their code. While this theoretically enables an audit team to customize the software to their business's specific needs, the major downside of a high-code tool is that it is highly complex and not user-friendly, **making the audit team dependent on the super user to unlock the benefits of the tool.**

Think of high-code data analytics like a car, where the super user is the only person on the audit team who knows how to drive it. Without the super user to "unlock" the high-code car and "drive" it, the rest of the audit team is unable to travel. Moreover, if the super user leaves the business, the rest of the audit team will be stranded. Learning to use a high-code software tool takes time and requires consistent and daily use, a project that the remaining staff may not have time to take on with their other audit projects. This is why high-code technology solutions often get shelved.

WHAT TO LOOK FOR IN LOW-CODE/NO-CODE AUDIT ANALYTICS

Opting for low-code or no-code data analytics technology helps to avoid this issue altogether. While there are a number of excellent, low-code/no-code data analytics solutions available on the market — not every solution may be right for your business. **Consider who will be using the analytics solution most frequently in your organization?** If most of the solution's primary users consist of auditors with little to moderate technological expertise, seeking out a low-code/no-code analytics solution **specifically designed for business users with no data science or analytics backgrounds** can significantly improve your chances of better adoption rates. While "best-in-breed" low-code analytics may be enticing, they can often be expensive — with annual subscriptions starting upwards of \$100,000 — and contain many features that audit and SOX users may not need such as geolocation data transformation and predictive modeling to forecast based on large modeled data sets. These features and solutions may be better suited for use by data scientists than your audit team.

Furthermore, no-code solutions that are purpose-built for audit users do indeed exist and can be **just as effective as more expensive, features-packed solutions** — in addition to being more **reasonably priced**. The following are features to consider prioritizing as you evaluate low-code/no-code analytics solutions to improve your chances of investing in an effective solution for your audit team:

Low-Code/No-Code Analytics Features to Prioritize

- Short learning curve for technology novices and experts alike
- Drag-and-drop based interface that is easy for any auditor to pick up
- Features Excel language and formulas, a language familiar to auditors
- Any auditor can run an analytics workflow without the help of a super user
- Cloud-based and can integrate with other “best-in-class” platforms
- Out-of-the-box use cases tailored for audit processes
- Flexible and scalable workflows



Industry Tip

The technology solution with an overall shorter time-to-value post implementation will likely benefit your team the most.

Importantly, a shorter learning curve allows audit users to start integrating analytics into their audit and SOX workflows faster, meaning they can experience the value-add benefits of the software — and demonstrate its ROI — soon after implementation. In addition, analytics solutions with pre-built workflows can also increase the speed of software adoption. In the next section, we will cover two common use cases for SOX and internal auditors that are ideal processes for applying analytics automation.

Two Use Cases for Applying Analytics Automation in SOX and Internal Audit

Most internal audit teams lack familiarity with incorporating workflow automation into their audit and SOX processes when getting started with a data analytics solution. This is where **pre-designed workflows based on specific audit and SOX use cases can be extremely beneficial for audit teams that have just implemented a data analytics solution.**

For instance, AuditBoard's no-code analytics technology has a library of audit and SOX-specific workflows that enable users to automate a number of common audit processes in a matter of clicks. With these out-of-the-box workflows, an auditor simply selects the audit use case, uploads the necessary files, runs the test or automation, and produces the result. **The ability to perform a test that would normally take hours in a matter of seconds is the true value of low-code/no-code analytics solutions.** Below are two common use cases you can find in AuditBoard's analytics solutions for [SOX management](#) and [audit management](#).

The screenshot displays the 'Automations' section of the AuditBoard interface. The main workflow is titled 'Travel and Expense Policy Testing Data Extract', which is currently paused (indicated by a greyed-out 'Execute' button). The workflow details include:

- Parameters:**
 - SAP Concur: US
 - Type: select_nested
 - Source: Alteryx
 - Period Start Date: 2023 - 09 - 11
 - Period End Date: 2023 - 17 - 12
- Output:** Travel and Expense Policy Testing

An 'Add Analytics' panel is open, showing a list of pre-built analytics workflows. The 'Identify Fictitious Vendors' workflow is highlighted. This workflow includes:

- Input Requirements:**
 - Vendor Population: Provide a valid file containing records for: Vendor Name, Vendor Number, Address, State, City, and Tax Identification Number.
 - Employee Population: Provide a valid file containing records for: Employee Number, First Name, Last Name, Address, State, and City.
 - Text String Parameter: Lorem ipsum is simply dummy text of the printing and typesetting industry. Making sure the'll fit in here.
- Output Expectations:** Potential Fictitious Vendors for Follow Up. If successful, Excel output includes records of vendors and employees with matching addresses.

The workflow diagram on the right shows a sequence of steps: 'Drop Duplicate POs', 'Merge POs with Invoices', 'Drop Duplicate Invoices', 'Join', 'Drop Duplicate Suppliers', and 'Identify Fictitious Vendors'.

SOX Use Case: User Access Review

User access reviews are a great place to incorporate analytics automation because it is a high-risk, time-consuming process to test. User access is especially ideal for automation because 1) its evidence collection and testing procedures are consistent period over period, and 2) it typically involves a high volume of samples.

By leveraging data analytics to automate user access testing, auditors can reach conclusions weeks, or even months, sooner than manual testing.

Being able to surface issues sooner ahead of the external audit is extremely valuable, as user access is a control type that is highly scrutinized and commented upon by regulators. Furthermore, any gaps identified in a user access test will benefit other areas of testing, including IT dependent controls and automated business controls.

Internal Audit Use Case: Procure-to-Pay

Procure-to-pay is a frequently audited business process, one that auditors have long sought to create efficiencies in. With the exception of payroll, procure-to-pay accounts for the largest proportion of spend at most organizations — which is why there is great value in automating the auditing and evaluation of this process. Furthermore, procure-to-pay can be fraught with complexity due to the high volume of transactions, as well as the multiple integrated systems, banks, and payment types involved — leading to increased opportunities for fraud.

By leveraging data analytics to automate procure-to-pay testing procedures, auditors can perform full population testing, enabling internal audit to identify and report on more gaps and improve more areas of this process. **Not only does applying data analytics to procure-to-pay testing save time, it creates greater assurance by covering an entire data set with more accuracy** as opposed to a smaller, randomly-selected sample size when tested manually.

Additional Use Cases

In addition to User Access Review and Procure-to-Pay, AuditBoard's no-code analytics technology provides out-of-the-box use cases to empower users, including:

Internal Audit Use Cases:

- Automated Sampling
- General Ledger (G/L) Analytics Review (e.g. duplicate journal entries)
- Benford's Law (explore random number digit distributions)
- Purchasing (e.g. approval/authorization limits)

SOX Use Cases:

- Terminated Users
- Journal Entry Testing
- Cutoff Testing
- Access Provisioning
- Segregation of Duties
- Key Report Testing
- Depreciation Calculations

To complement these use case workflows, AuditBoard's no-code analytics solution has the flexibility to build and deploy workflows to create greater efficiencies and enable business-enhancing data-driven decisions.

Disrupting the Status Quo to Provide Value to the Business

In a business landscape where data grows ever more abundant, embracing advanced analytics has become not just a choice, but a necessity for audit teams and businesses that aim to thrive in an exceedingly competitive market. While resource constraints and the familiarity of traditional auditing methods may be convenient excuses not to explore the capabilities of modern data analytics, **disrupting the status quo is essential for audit functions that wish to remain relevant and provide value to the business amid heightened talent, cyber, and compliance risks.**

As highlighted in this guide, the journey toward successful data analytics adoption requires making the case for modern audit analytics, as well as seeking out low-code/no-code solutions that are most likely to provide value to your audit team soon after implementation.

Ultimately, the capacity of internal audit teams to contribute meaningfully to their organization hinges upon forward-thinking, visionary auditors and the modern technologies they harness to support their cause. **By utilizing low-code/no-code analytics, audit teams can manage their risks and controls with greater accuracy and efficiency to support their business leaders in making better-informed, data-driven decisions.**

To learn how AuditBoard can provide you with the flexibility to use native analytics and continuous monitoring — or effortlessly interface with your preferred, best-of-breed automation solutions — for improved scalability, adaptability, and team efficiency, visit auditboard.com to request a tailored demo.

“AuditBoard Analytics allows us to increase efficiency and to “audit smarter” across our core audit processes, providing time savings and allowing us to reallocate resources to analyze other areas within the County. As a small audit shop, we needed a tool that was quick to implement and easy to use, which we found in AuditBoard Analytics. As a result, our team is better positioned to add value to the organization while we continue to expand our use of analytics.”

Bob (Robert) DellaCroce, CPA
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Scott Madenburg is a Senior Market Advisor at AuditBoard, supporting organizations in transforming their audit, SOX, and risk management through best-in-class technology solutions. Scott brings more than 20 years of experience in the areas of audit, risk, and compliance. Beginning his career at Arthur Andersen, Scott transitioned to internal audit with Fox Entertainment Group, News Corporation, and Rovi Corporation, where he helped lead operational and IT audits and SOX compliance, consulted on business process improvements, and participated in multiple ERP implementations and M&A activities. Prior to joining AuditBoard, Scott was the chief audit executive at Mobilitie, where he built the internal audit function from the ground up to a six-person department focusing on agile audits, SOX readiness, risk management, and cyber and IT security compliance.



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About AuditBoard

AuditBoard is the leading cloud-based platform transforming audit, risk, and compliance management. More than 40% of the Fortune 500 leverage AuditBoard to move their businesses forward with greater clarity and agility. AuditBoard is top-rated by customers on G2, Capterra, and Gartner Peer Insights, and was recently ranked for the fourth year in a row as one of the fastest-growing technology companies in North America by Deloitte. To learn more, visit: AuditBoard.com

