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Global Business Consulting

The Evolution of SOX: Tech Adoption and Cost Focus Amid Business Changes, Cyber and ESG Mandates

Assessing SOX internal costs, hours, controls and other trends in the results of Protiviti's 2023 Sarbanes-Oxley Compliance Survey

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Executive summary

Consider the possibilities: Few board members and C-suite leaders view SOX compliance as a hotbed of opportunity for process innovation or leading-edge technology. They may want to reassess their perspective.

More companies are embracing a new, "next-generation" SOX compliance mindset, one that prioritizes introducing tools and technology to support the company's internal controls systematically and efficiently. Companies are attacking climbing compliance costs by taming the complexity of their control environment and exploring and pursuing options to further tech-enable controls and testing activities.

By the numbers: Protiviti's annual Sarbanes-Oxley Compliance Survey provides detailed benchmarks for compliance costs and hours, while quantifying the impact of technology, automation and changing business conditions on these measures and activities.

- A growing number of organizations are investing in automation and advanced technology tools to support their SOX compliance activities. They utilize intelligent audit management and GRC platforms, workflow automation, continuous monitoring, process mining, advanced analytics, and data visualization tools to streamline controls testing, reporting, and other manual compliance activities. Our results indicate that more compliance programs would benefit from following suit, as there are efficiency, effectiveness and cost-saving benefits to be realized.

Why it matters: Automation and technology enablement, resourcing models that include outsourcing options and centers of excellence, and greater use of standardized controls across multiple locations and complex organizations are foundational elements of a "next-generation" SOX compliance program.

- Similar to leading internal audit functions that deliver value and demonstrate relevance, next-generation SOX compliance programs need to embrace such tools and approaches in the face of unrelenting business changes.
- While there are no shortcuts on the journey to more efficient and effective SOX compliance, there are a host of innovative ways to structure, equip and manage SOX compliance teams.
- The introduction of automation and continuous monitoring is having a positive impact in streamlining and strengthening business process and IT controls.

The first step: Reconsider outdated notions of what SOX compliance is and can be.

But it's not just about technology: External factors impacting SOX compliance activities, such as the SEC's recently adopted rules around cybersecurity disclosures, the PCAOB's annual inspection process

A growing number of organizations are investing in automation and advanced technology tools to support their SOX compliance activities.

AUDITBOARD

Protiviti would like to thank AuditBoard for collaborating on the 2023 Sarbanes-Oxley Compliance Survey questionnaire and report.

of external auditors, and the SEC's proposed climate change disclosure rules, highlight the broader and changing landscape of non-financial data reporting and how organizations are preparing for it.

Internal audit's leading role: Internal audit continues to have a significant role in SOX compliance, particularly in emerging growth companies and Section 404(a) filers.

- Internal audit functions devote nearly half of their time (47%) to SOX compliance.

Adding ESG into the mix: More than one in three organizations (37%) disclose ESG metrics and apply ICFR-type processes to that information, and we expect this number to increase significantly in the coming years, regardless of the timing of regulatory activity.

Highlights from our study

Compliance costs are influenced by organizational size and complexity — While the increasing cost of SOX compliance is a recurrent concern, our data confirms that factors such as organizational size, complexity, process maturity and the stage of SOX compliance predominantly determine these costs. Strategies to optimize costs must consider these parameters.

SOX compliance hours continue to climb — This likely is a result of efforts to create and implement more sustainable change in SOX compliance programs, as well as the increasing complexity of regulatory environments and the integration of new technologies and processes throughout the organization, all of which require additional controls and risks to be managed.

The use of automation and technology tools continues to rise, delivering value-added benefits — More than 60% of SOX compliance programs use an audit management and GRC platform to enable their SOX compliance programs, and three out of four organizations are seeking opportunities to further enable automation in their program.

ESG reporting and data are gaining more attention — A majority of organizations have initiated efforts to address the SEC's proposed climate change disclosure rules.

Source code reviews are on the rise — Once a rather arcane component of SOX compliance, these reviews are moving to the forefront as external auditors increasingly require review of the source code underlying automated controls. This shift, driven in part by heightened scrutiny from the PCAOB, is prompting auditors to adopt a more comprehensive evaluation of automated controls to ensure their effectiveness and integrity.

63%

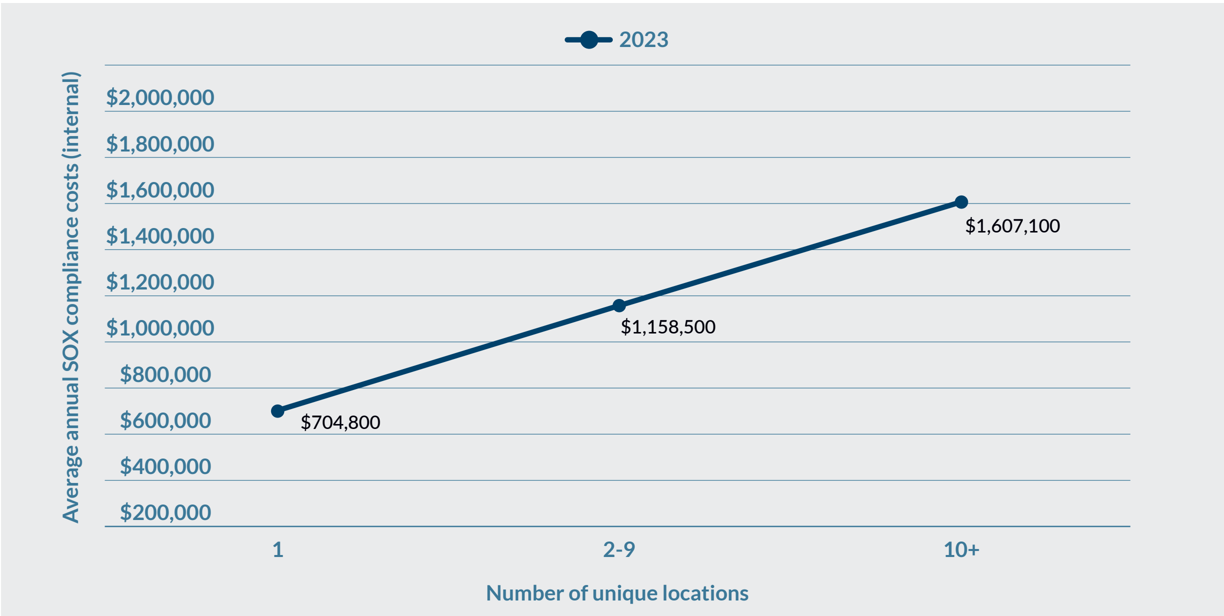
Organizations that use an audit management and GRC platform to enable their SOX compliance program.

A note to our readers

Protiviti can provide further detailed results and insights from this study, including where other organizations in similar industries and of comparable size, filer status and more stand in relation to a company's own SOX compliance program. Please contact your local Protiviti office or representative for more information.

SOX compliance costs — size and complexity drive spend

*Average annual SOX compliance costs (internal) by number of unique locations, excluding external audit-related fees.**



Sample size: n=564 respondents

* Please note: These numbers represent average SOX compliance costs for the different groups. Specific compliance costs will vary depending on a number of factors, including but not limited to specific number of locations, number of product lines and sources of revenue.

What you need to know

- Size, complexity and SOX compliance stage (first year, second year, etc.) drive the costs for most organizations. The overall size of an organization, including but not limited to its number of locations worldwide, is a key factor but not the only one. That said, an organization with a single location very likely finds their costs to be lower than multi-location organizations.
- Complexity enters into the equation when an organization is going through the initial stages of SOX readiness and preparedness and transitioning from Section 404(a) to 404(b) compliance requirements, or when it moves out of the emerging growth company category. The first year of 404(b), for example, can be more burdensome than later years. In these instances, we see notable increases in costs as well as hours. Other factors that increase SOX efforts include multiple lines of business and decentralized business processes.
- Other influences on SOX compliance costs include external factors (e.g., inflation, cost of labor, currency fluctuations) and regulatory changes (e.g., legislation, auditing standards, financial reporting requirements).

*Average annual SOX compliance costs (internal), excluding external audit-related fees.**

SOX filer status	
Large accelerated filer	$1,364,800
Accelerated filer	$882,700
Non-accelerated filer**	$723,100
Size of organization	
$10 billion or greater	$1,791,700
$5 billion to $9.99 billion	$1,255,900
$1 billion to $4.99 billion	$1,035,000
$500 million to $999.99 million	$651,800
Less than $500 million	$651,000
SOX compliance year	
Beyond 2nd year of SOX compliance 404(a) and 404(b)	$1,404,300
2nd year of SOX compliance 404(a) and 404(b)	$1,150,000
1st year of SOX compliance 404(a) and 404(b)	$1,047,200
Ongoing 404(a) SOX compliance	$765,900
1st year of SOX compliance 404(a)	$617,900

Sample size: n=564 respondents

* Please note: These numbers represent average SOX compliance costs for the different groups. Specific compliance costs will vary depending on a number of factors, including but not limited to specific number of locations, number of product lines and sources of revenue.

** Non-accelerated filers include organizations defined under SEC guidance as smaller reporting companies or emerging growth companies.

What you need to know

- A positive trend is that SOX costs per location are trending down. This makes sense as companies improve how they apply compliance processes and controls, automation, and technology consistently from one location to the next. It also reflects a transition by many organizations to shared service center models. While organizations have been making progress in these areas over the past few years, it's possible that costs continued to rise due to a highly competitive market for talent (which has cooled a bit this year) and other factors that may have clouded some of the savings being achieved through these actions.
- While efforts to apply compliance processes and technologies such as cloud-based applications more consistently across locations have been underway for some time, they accelerated during the pandemic years as organizations pushed to streamline these activities amid changing working conditions. More organizations are beginning to realize the benefits of these initiatives.

*Who spent $2 million or more (internal), excluding external audit-related fees?**

SOX filer status	
Large accelerated filer	17%
Accelerated filer	5%
Non-accelerated filer	7%
Size of organization	
$10 billion or greater	35%
$5 billion to $9.99 billion	8%
$1 billion to $4.99 billion	9%
$500 million to $999.99 million	3%
Less than $500 million	6%
SOX compliance year	
Beyond 2nd year of SOX compliance 404(a) and 404(b)	23%
2nd year of SOX compliance 404(a) and 404(b)	2%
1st year of SOX compliance 404(a) and 404(b)	2%
Ongoing 404(a) SOX compliance	10%
1st year of SOX compliance 404(a)	0%
Number of unique locations	
10+ locations	38%
2-9 locations	10%
1 location	4%

Sample size: n=564 respondents

* Please note: These numbers represent average SOX compliance costs for the different groups. Specific compliance costs will vary depending on a number of factors, including but not limited to specific number of locations, number of product lines and sources of revenue.

What you need to know

- Over time, the use of advanced technologies like AI (including generative AI) and machine learning (ML) is expected to make a difference in cost management. These technologies help to automate routine tasks, reduce errors and provide more insightful risk assessments. While they require an initial investment, the cost benefits become evident as the systems mature and efficiencies are realized.
- Sometimes organizations can be intimidated by the initial costs for these technologies and don't invest in them. We also see organizations confront integration hurdles, which can be discouraging — implementation is rarely a straightforward exercise. But those organizations that push through more aggressively and focus on quick wins can gain the necessary momentum and more quickly be in a position where enabling technologies help reduce SOX costs.
- Long-term, organizations can manage their SOX compliance costs by putting into place standardized controls that are applied consistently across as many locations and product lines as possible and drive automation into as many aspects of the control environment as possible.

*Who spent $500,000 or less (internal), excluding external audit-related fees?**

SOX filer status	
Large accelerated filer	12%
Accelerated filer	31%
Non-accelerated filer	45%
Size of organization	
$10 billion or greater	6%
$5 billion to $9.99 billion	12%
$1 billion to $4.99 billion	21%
$500 million to $999.99 million	41%
Less than $500 million	55%
SOX compliance year	
Beyond 2nd year of SOX compliance 404(a) and 404(b)	17%
2nd year of SOX compliance 404(a) and 404(b)	6%
1st year of SOX compliance 404(a) and 404(b)	14%
Ongoing 404(a) SOX compliance	48%
1st year of SOX compliance 404(a)	45%
Number of unique locations	
10+ locations	20%
2-9 locations	18%
1 location	44%

Sample size: n=564 respondents

* Please note: These numbers represent average SOX compliance costs for the different groups. Specific compliance costs will vary depending on a number of factors, including but not limited to specific number of locations, number of product lines and sources of revenue.

How does your organization compare?

What portion of SOX internal costs is for outsourced resources (both onshore and offshore)?

0-10%	23%
11-20%	12%
21-30%	12%
31-40%	12%
41-50%	14%
51-60%	12%
61-70%	8%
71-80%	3%
81-90%	2%
91-100%	2%
Average percentage	**36%**

Sample size: n=564 respondents

What portion of SOX internal costs is offshored for internal resources?

0-10%	39%
11-20%	9%
21-30%	12%
31-40%	13%
41-50%	10%
51-60%	9%
61-70%	5%
71-80%	2%
81-90%	1%
91-100%	0%
Average percentage	**26%**

Sample size: n=564 respondents

What you need to know

- Leading compliance programs diversify their talent pool via rotations from other departments and collaborations with external partners who can provide specialized expertise via outsourced, co-sourced or consultative working models. (For more insights, read the "People, talent and offshoring resources" sidebar on page 18.)

What portion of SOX internal costs is offshored for outsourced resources?

0-10%	39%
11-20%	9%
21-30%	11%
31-40%	16%
41-50%	11%
51-60%	7%
61-70%	5%
71-80%	1%
81-90%	1%
91-100%	0%
Average percentage	**26%**

Sample size: n=564 respondents

How does your organization compare?

Organizational structure, compliance year drive more SOX hours

For fiscal year 2022, how did the total amount of hours your organization devoted to Sarbanes-Oxley compliance change?

SOX compliance hours increased	58%
SOX compliance hours decreased	14%
SOX compliance hours stayed the same	28%

	SOX compliance hours increased	SOX compliance hours decreased
SOX filer status		
Large accelerated filer	68%	9%
Accelerated filer	55%	13%
Non-accelerated filer	39%	29%
Size of organization		
$10 billion or greater	73%	6%
$5 billion to $9.99 billion	65%	14%
$1 billion to $4.99 billion	57%	12%
$500 million to $999.99 million	38%	29%
Less than $500 million	59%	10%

Sample size: n=564 respondents

Continued...

What you need to know

- While SOX compliance costs have not risen dramatically over the past year, hours required for compliance activities continue to rise. This likely is a result of efforts to create and implement more sustainable change in SOX compliance programs, including greater use of technology tools and automation, as well as growing complexity in organizational structures and increasing expectations, scope of activities and inquires from external auditors.
- Organizations should also consider the role that ongoing changes in business processes, acquisitions and other significant events play in SOX compliance efforts.
- Of note, a significant number of our survey respondents are operating within their first two years of SOX compliance, during which there is more time required to bring the organization's compliance processes and activities up to required standards. These earlier phases of SOX work often involve detailed process mapping, risk assessment, and control design and implementation, which may contribute to the increase in compliance hours, as well as effort related to remediation activities that is common for newly public companies.
- Building a strong foundation that is enabled by technology and supported by clear guidance, effective training and experienced SOX personnel will help reduce the need for extensive hours and efforts in later years of SOX compliance.

For fiscal year 2022, how did the total amount of hours your organization devoted to Sarbanes-Oxley compliance change?

	SOX compliance hours increased	SOX compliance hours decreased
SOX compliance year		
Beyond 2nd year of SOX compliance 404(a) and 404(b)	68%	9%
2nd year of SOX compliance 404(a) and 404(b)	70%	11%
1st year of SOX compliance 404(a) and 404(b)	54%	11%
Ongoing 404(a) SOX compliance	39%	28%
1st year of SOX compliance 404(a)	32%	35%
Number of unique locations		
10+ locations	58%	14%
2-9 locations	65%	10%
1 location	40%	26%

Sample size: n=564 respondents

How does your organization compare?

During fiscal year 2022, how many hours, on average, would you estimate your organization spent on each key control as it relates to the following activities? (Not shown: "Don't know" responses)

	Average number of hours	Less than 1 hour	1-2 hours	3-4 hours	5-6 hours	7-8 hours	9-10 hours	Over 10 hours
Testing for control operating effectiveness	5.9	3%	10%	27%	24%	16%	7%	13%
Testing management review controls	5.7	4%	14%	27%	19%	17%	5%	14%
Time to analyze a SOC report	5.2	5%	15%	26%	24%	16%	5%	9%
Evaluating control design including walkthrough	5.1	5%	17%	27%	21%	16%	5%	9%
Testing information produced by entity (IPE) for data used to execute key controls	5	6%	17%	26%	25%	14%	5%	7%
Creating or updating control documentation	4.9	8%	17%	26%	20%	16%	6%	7%

Sample size: n=564 respondents

How does your organization compare?

Translating Next-Gen Internal Audit practices to SOX compliance

As organizations seek out opportunities to enhance the process efficiency, technology enablement and talent management within their SOX compliance programs, they should align with — and observe — the changes their internal audit groups are making. According to our Next-Generation Internal Audit Survey, a majority of internal audit functions are making their coordination and alignment with other assurance functions a top transformation priority.

There likely are opportunities for SOX compliance programs to emulate the ways internal audit leverages automation and enabling technologies combined with advanced analytics and high-impact reporting to achieve greater relevance throughout the organization.

Similarly, internal audit leaders' emphasis on upskilling across all domain areas — while focusing both on technical skills such as advanced analytics as well as communications, teamwork, problem-solving, time management, leadership and emotional intelligence — can help SOX compliance leaders plan and execute similar talent management approaches while building in long-term opportunities to streamline compliance costs and hours.

How does your organization compare?

Use of technology and automation to enable SOX work

Which of the following technologies, if any, do you currently use to enable your SOX compliance program? (Multiple responses permitted)

Audit management and GRC platforms	63%
Data analytics and visualization platforms	38%
Continuous monitoring	36%
Segregation of duties analysis tools	30%
Custom scripting and/or programming	27%
Continuous auditing	25%
Advanced analytics	23%
Intelligent audit platform	18%
Robotic process automation platforms	17%
Process mining platforms	7%
None	4%

Sample size: n=564 respondents

What you need to know

- The use of automation and technology tools continues to rise, delivering value-added benefits. More than 60% of SOX compliance programs use an audit management and GRC platform to enable their SOX compliance programs, and three out of four organizations are seeking opportunities to further enable automation in their program.
- SOX compliance hours and costs are unlikely to decrease significantly given the pace of external volatility and internal transformation underway in many organizations. Companies that are able to achieve compliance efficiency gains lean more heavily on technology and automation enhancements. Advanced analytics, process mining, data visualization, continuous monitoring and related technologies provide data-driven compliance insights. Further, technology enablement represents a rare component of compliance leaders' concerns and responsibility that is within their control.
- There continues to be a trend toward a more proactive and data-informed approach to SOX compliance work. Compliance programs that deploy advanced technology systems and tools understand the value these offerings deliver and invest in the talent and expertise required to use them. The use of automation and technology tools will continue to grow over time.

Approximately what percentage of your SOX compliance program utilizes technology tools?

0%	2%
1-10%	15%
11-20%	20%
21-30%	23%
31-40%	15%
41-50%	7%
More than 50%	15%
Unsure	3%
Average percentage	**28%**

Sample size: n=564 respondents

	Size of organization				
	$10 billion or greater	$5 billion to $9.99 billion	$1 billion to $4.99 billion	$500 million to $999.99 million	Less than $500 million
0%	1%	0%	3%	3%	8%
1-10%	9%	12%	11%	25%	23%
11-20%	16%	25%	21%	19%	19%
21-30%	26%	32%	25%	16%	10%
31-40%	19%	10%	15%	16%	10%
41-50%	11%	9%	6%	3%	6%
More than 50%	16%	11%	15%	15%	16%
Unsure	2%	1%	4%	3%	8%
Average percentage	**31%**	**27%**	**28%**	**25%**	**24%**

Sample size: n=564 respondents

What you need to know

- More technology providers are layering new, user-friendly AI, ML and advanced analytics into their existing applications, potentially equipping more SOX compliance teams with access to cutting-edge tools. Regardless of the cutting-edge technology that is available or being used, organizations need to continue to focus on data governance, change management and upskilling when implementing these new technologies. Otherwise, they will struggle to reap the benefits.
- Tech-savvy SOX compliance leaders understand that certain types of automation require more time to learn and deploy than other tools. Currently, generative AI and large language models (LLMs) are becoming easily accessible. The use of these tools in SOX compliance work undoubtedly will evolve over time. Provided that data governance, quality and security, together with related risks, are addressed, SOX compliance teams can soon begin testing, learning and integrating these tools into their workflows.
- Emerging technologies like generative AI offer exciting potential for SOX compliance. For example, LLMs, when used in a controlled and secure manner, could be trained to evaluate SOX controls and related evidence automatically (with experienced auditor supervision, of course) and could also be used to identify areas

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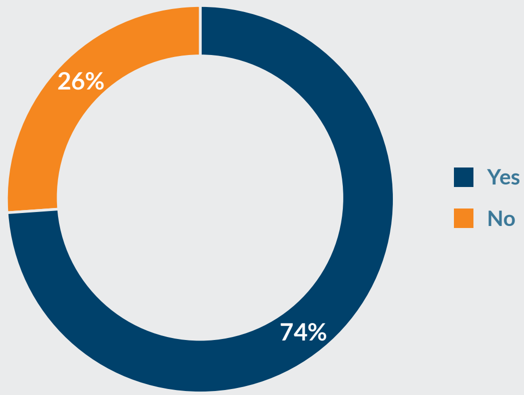
Are you seeking opportunities to further enable automation of your SOX compliance program?



Sample size: n=564 respondents

Which of the following represent the challenges keeping you from automating your control testing? (Multiple responses permitted)

Many areas of the SOX control environment are not conducive to automation	47%
Lack of time to spend exploring automation due to other priorities	39%
Level of effort to implement, train, govern and maintain	34%
Lack of funding and/or executive support for automation	31%
Lack of talent/skilled resources to manage an automation program	31%
Lack of knowledge on available tools and technology	29%
Other	2%
None of the above	3%

Sample size: n=564 respondents

What you need to know

continued…

of potential overlap (that could be tackled to streamline the control environment). Further, generative AI could be trained to identify risk patterns and anomalies in large volumes of data, focusing the detailed review attention on the areas of highest potential risk. As the technologies and internal governance processes evolve, we believe generative AI could also drive a proactive approach to SOX compliance, providing real-time insights and predictive analytics to identify potential issues before they arise. The technology is still evolving and organizations are figuring out how to incorporate LLMs safely and securely within their private cloud environments. Nonetheless, there is significant untapped potential and we anticipate major breakthroughs over the next few years.

- It's not surprising to see the use of certain technologies such as robotic process automation (RPA) and process mining trending down. This likely is due to a combination of financial, technical and skill/talent-related reasons. While RPA and process mining are quite powerful, the trend downward may also be due to the fact that organizations tried them and found they do not fully address their complex and evolving needs. For example, integration challenges with existing

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Which of the following represent the challenges keeping you from automating your control testing? (Multiple responses permitted)

	By percentage of key controls that are automated	
	0%-50%	51%-100%
Many areas of the SOX control environment are not conducive to automation	47%	45%
Lack of time to spend exploring automation due to other priorities	37%	50%
Level of effort to implement, train, govern and maintain	35%	29%
Lack of funding and/or executive support for automation	33%	23%
Lack of talent/skilled resources to manage an automation program	34%	22%
Lack of knowledge on available tools and technology	30%	21%
Other	2%	0%
None of the above	3%	2%

What you need to know

continued...

systems or processes, as well as data governance challenges, are common — combined with platform governance and maintenance considerations, this could discourage their use. The decline also might reflect a normal technology adoption cycle, where an initial surge in usage is followed by a drop as organizations evaluate the effectiveness of the technology, fine-tune their strategies and seek out the next wave of innovative tools. Long-term, compared with RPA and process mining, we expect AI (including LLMs) and ML to play a more prominent role in accelerating SOX activities and driving greater coverage and effectiveness.

- Many organizations have an opportunity to test controls faster and more accurately by leveraging testing accelerators — one of many such technology tools is DataSnipper, a third-party intelligent automation feature installed as an add-in within Microsoft Excel.
- Nearly half of all organizations believe there are many areas of their SOX control environment that are not conducive to automation. The fact is that automating certain controls, while potentially delivering benefits that include cost and time savings, is not

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People, talent and offshoring resources

Optimizing a SOX compliance program's people and talent is akin to assembling a puzzle. The interconnecting pieces include recruiting and retention, training, technology enablement, culture, and organizational structure. These pieces must fit together to combat an ongoing demand for talent, particularly in the internal audit space.

SOX compliance programs cannot execute against their objectives without sufficient talent capacity and the right skills. SOX compliance leaders should have well-defined people and talent strategies with effective upskilling approaches. These mechanisms should keep compliance teams current on evolving risks and priorities while developing increasingly technology- and data-savvy professionals. Of note, more external audit teams are leveraging technology in their approach. Internal SOX teams need to keep pace and, in many cases, catch up. Specific skills in high demand include data analytics, strong GRC platform configuration know-how, automation knowledge, and AI/ML (with generative AI growing quickly in prominence).

Leading compliance programs diversify their talent pool via rotations from other departments and collaborations with external partners who can provide specialized expertise via outsourced, co-sourced or consultative working models. They also deploy formal skills assessments to maintain accurate inventories of current compliance skills, which are compared to evolving compliance risks to recalibrate recruiting and training activities.

In addition to leveraging outsourcing and offshoring models (see pages 8–9), more organizations are creating compliance centers of excellence and related centralized service-delivery models to achieve efficiency gains, especially when performing SOX controls testing and other well-defined, highly repeatable forms of compliance work.

Reducing the volume of manual controls testing that full-time employees are required to conduct — while increasing their exposure to cutting-edge technology tools — lowers the risk of human error and leads to greater accuracy, consistency and reliability in SOX testing. It also helps strengthen employee engagement, increase productivity and mitigate burnout risks. Compliance leaders can achieve similar benefits by embracing a more intentional and methodical approach to culture-building. A first-rate culture drives a range of favorable short- and long-term business outcomes while strengthening recruiting and retention activities.[1]

[1] "Organizational Culture Is a Competitive Advantage," *The Bulletin*, Protiviti: www.protiviti.com/us-en/newsletter/bulletinv8i5-organizational-culture.

What you need to know

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always an option given their complex nature requiring a substantial level of judgment as well as lack of time and funding. It can be difficult to define a clear ROI. However, it's also easy to reach a snap decision that a control's operation is not conducive to automation or leveraging technology without considering all options and the benefits they can provide. When assessing the value of automation, even if it's difficult to define a clear ROI for certain controls or SOX processes, organizations should consider long-term efficiency gains, improved accuracy and the potential for reduced compliance hours. They also should consider the potential for automation or other technology enablement that addresses a very discrete activity rather than the full end-to-end of a control or SOX process component.

- Organizations that have been able to overcome these challenges to automate more of their controls and reap the benefits share similar traits. They have invested in building the necessary skills and otherwise upskilling (e.g., through targeted hiring). In addition, they may have a strong level of support from their technology departments and leverage a third-party provider that helps the organization accelerate automation in its SOX program.

Benchmarking the SOX control environment

What percentage of your controls testing do the external auditors rely upon?

	2023
0%	5%
1-10%	10%
11-20%	19%
21-30%	24%
31-40%	16%
41-50%	11%
More than 50%	15%
Average percentage	**29%**

Sample size: n=564 respondents

What you need to know

- The average percentage of controls testing that external auditors rely on is 29%. Despite advancements in automation and internal controls, external auditors still perform a significant portion of independent controls testing, indicating the critical role of third-party validation in ensuring SOX compliance. This indicates that organizations may have some room to increase the robustness and reliability of their internal control testing, working in close partnership with external audit teams. However, this also reflects a reality that external auditors are being pressed, by both the PCAOB and their own evolving quality requirements, to increase the depth and coverage of their procedures.

What percentage of your controls testing do the external auditors rely upon?

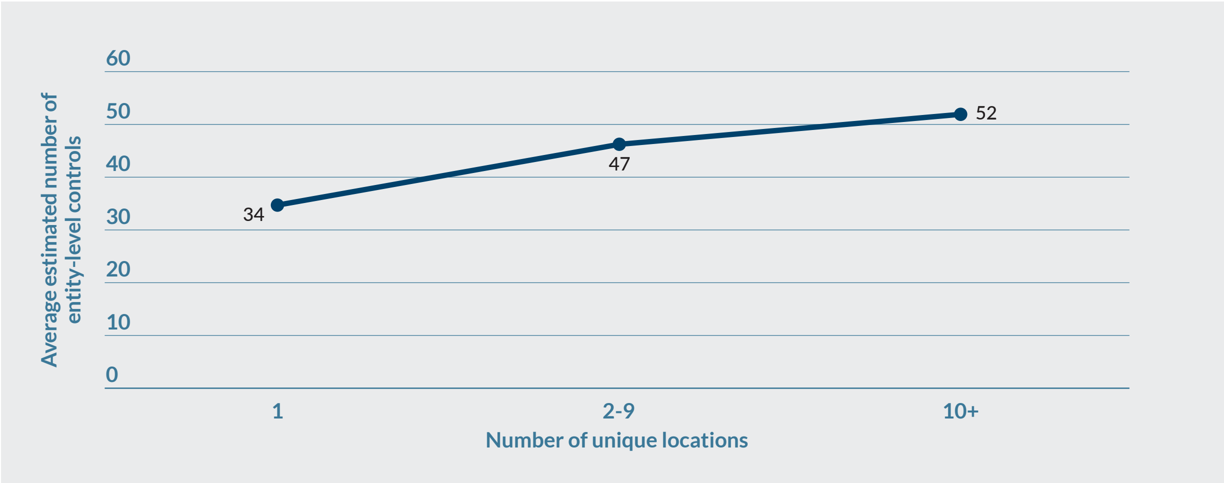
	Size of organization				
	$10 billion or greater	$5 billion to $9.99 billion	$1 billion to $4.99 billion	$500 million to $999.99 million	Less than $500 million
0%	3%	0%	3%	8%	21%
1-10%	3%	6%	7%	21%	19%
11-20%	11%	14%	23%	30%	16%
21-30%	33%	24%	24%	22%	6%
31-40%	20%	25%	16%	7%	6%
41-50%	13%	14%	12%	4%	14%
More than 50%	17%	17%	15%	8%	18%
Average percentage	**33%**	**34%**	**30%**	**20%**	**24%**

Sample size: n=564 respondents

What you need to know

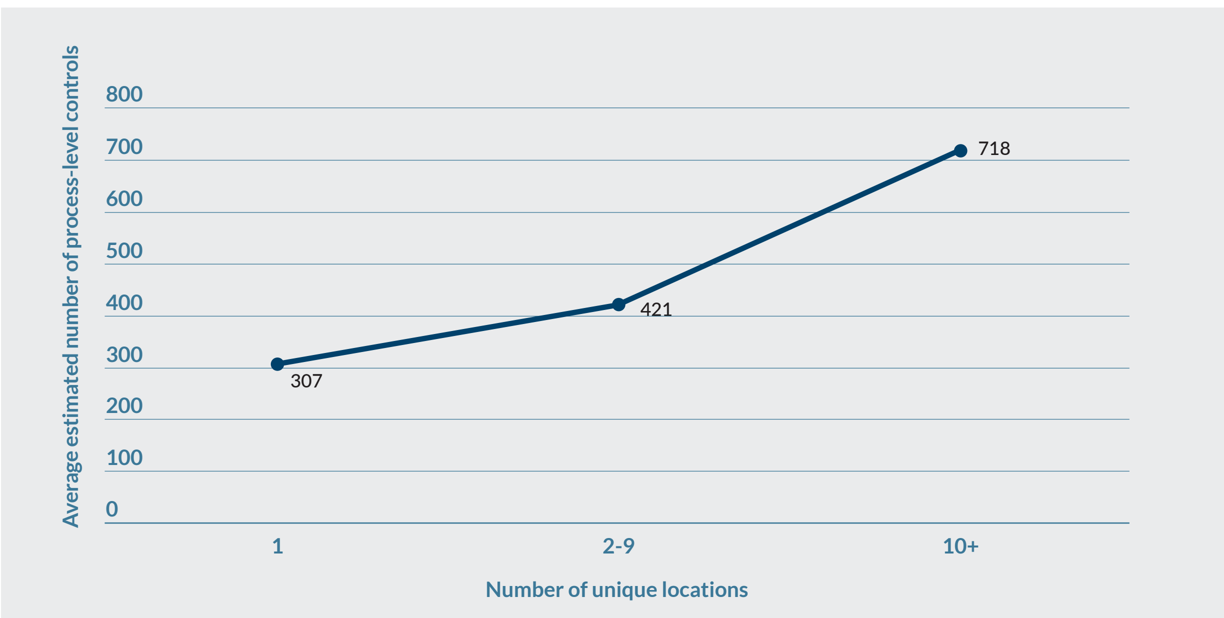
- There is some correlation between the size of a company and the percentage of controls testing external auditors rely upon. This may be because larger organizations often have more resources and potentially greater maturity in their SOX programs (e.g., they have the capital to invest in GRC technology), allowing them to achieve higher levels of controls testing reliance.

For fiscal year 2022, what was your organization's estimated number of key entity-level controls?



Sample size: 1 location: n=125; 2-9 locations: n=355; 10+ locations: n=84

For fiscal year 2022, what was your organization's estimated number of key process-level SOX-related controls?



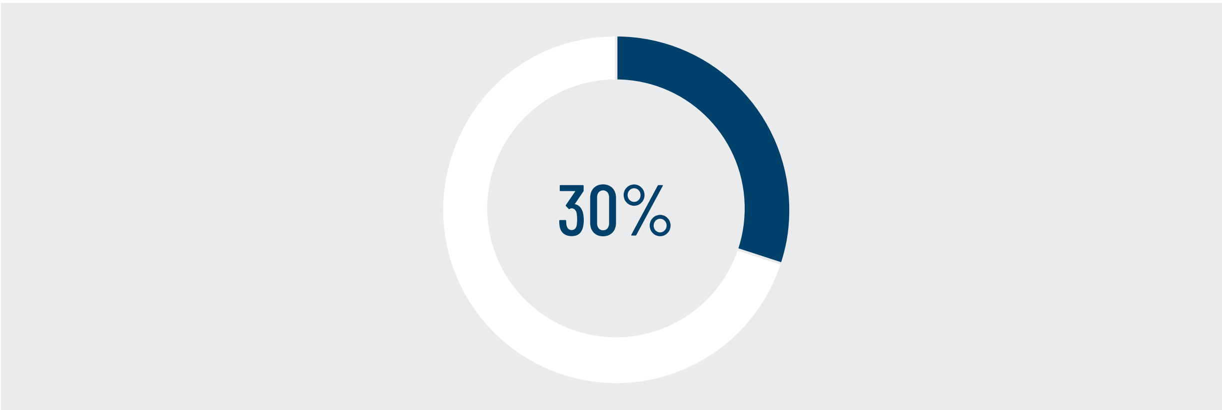
Sample size: 1 location: n=125; 2-9 locations: n=355; 10+ locations: n=84

What you need to know

- As expected, there is a correlation between the number of locations and average number of both entity-level controls and IT general controls (see page 22). This is consistent with the expected increase in complexity and risk that come with operating across multiple locations and also represents an opportunity for multi-location organizations to drive toward standardization and consistency in controls across locations.

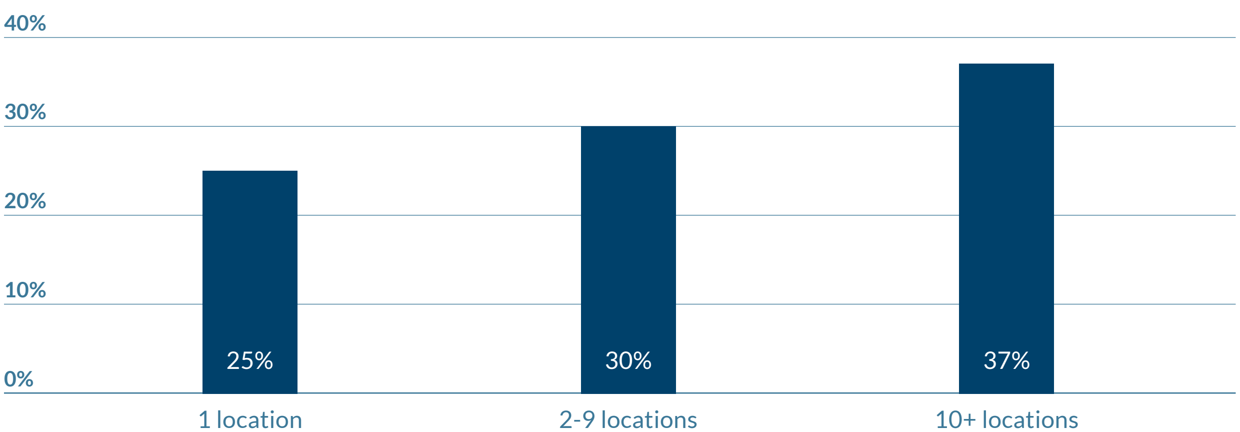
What percentage of your key process-level controls are classified as IT general controls for purposes of evaluating the effectiveness of internal control over financial reporting? (Shown: average response)

All respondents



Sample size: n=564 respondents

Number of locations

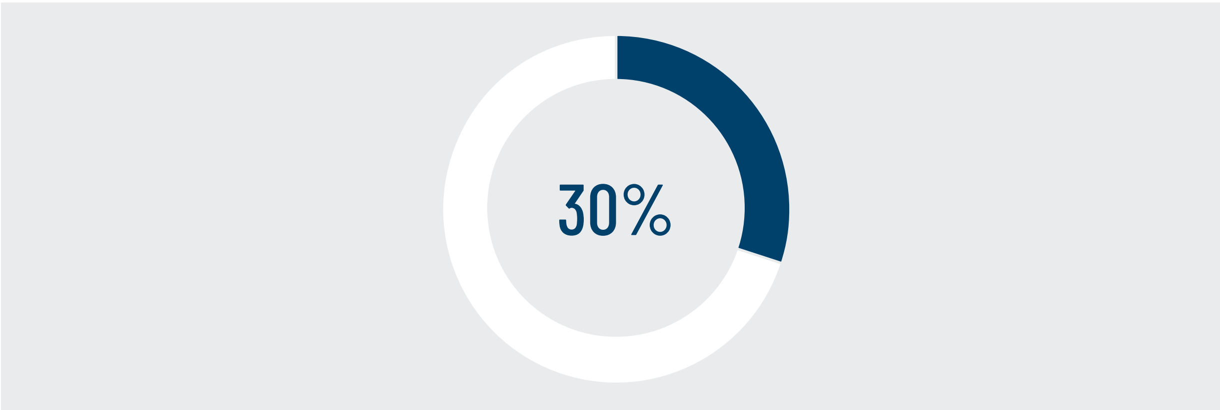


Sample size: 1 location: n=125; 2-9 locations: n=355; 10+ locations: n=84

How does your organization compare?

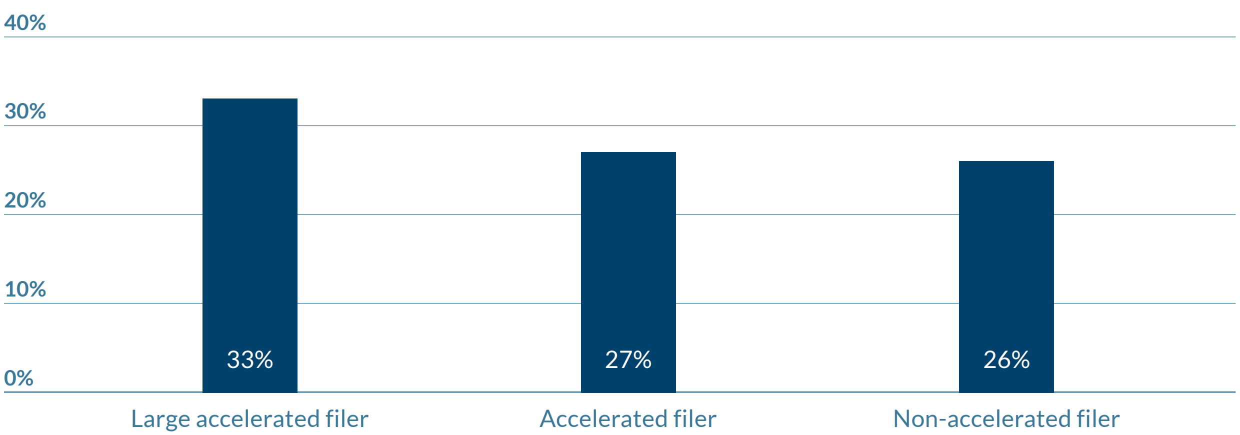
For fiscal year 2022, what percentage of your organization's total key controls would you estimate are automated key controls? (Shown: average response)

All respondents



Sample size: n=564 respondents

SOX filer status



Sample size: Large accelerated filer: n=345; Accelerated filer: n=75; Non-accelerated filer: n=119

What you need to know

- Interestingly, when comparing organizations with higher and lower percentages of automated key controls, the group at the higher percentage levels of automation express a far stronger likelihood of automating more of their SOX processes and controls. This could be an indication that they have realized specific, measurable ROI from these efforts and believe they have the necessary resources (people and technology) to continue with their efforts.

For fiscal year 2022, what percentage of your organization's total key controls would you estimate are automated key controls?

	Size of organization				
	$10 billion or greater	$5 billion to $9.99 billion	$1 billion to $4.99 billion	$500 million to $999.99 million	Less than $500 million
Average percentage	39%	31%	28%	26%	23%

Sample size: n=564 respondents

Has your external auditor focused on reviewing source code for automated controls?

	By percentage of key controls that are automated		
	0%-20%	21%-40%	41%-100%
Yes	48%	56%	64%
No	40%	37%	31%
Unsure	12%	7%	5%

To what extent does your organization plan to further automate its manual processes and controls within fiscal year 2022?

	2023
We have significant plans to automate a broad range of IT processes and controls	23%
We have moderate plans to automate numerous IT processes and controls	42%
We have minimal plans to automate selected IT processes and controls	30%
We have no plans to automate any further	5%

Sample size: n=564 respondents

What you need to know

- The proportion of external auditors reviewing the source code for automated controls increases with the percentage of controls that are automated. This likely is due to a growing scrutiny of automated controls, especially those that may exist in legacy, proprietary or heavily customized systems. These controls may require the auditor to dig deep into the source code to validate that the systems have been coded consistent with defined business requirements. We expect more in-depth examination of controls to continue, especially as external audit teams leverage more technology in their approach.

To what extent does your organization plan to further automate its manual processes and controls within fiscal year 2022?

	Percentage of automated key controls		
	0%-20%	21%-40%	41%-100%
We have significant plans to automate a broad range of IT processes and controls	5%	20%	56%
We have moderate plans to automate numerous IT processes and controls	38%	54%	34%
We have minimal plans to automate selected IT processes and controls	48%	23%	9%
We have no plans to automate any further	9%	2%	1%

Sample size: n=564 respondents

What you need to know

- The fact that a majority of respondents have significant or moderate plans to automate IT processes and controls indicates a continued trend toward automation in SOX compliance. Of particular note, the desire to automate further increases with the current level of automation, suggesting that organizations are experiencing the benefits of automation.

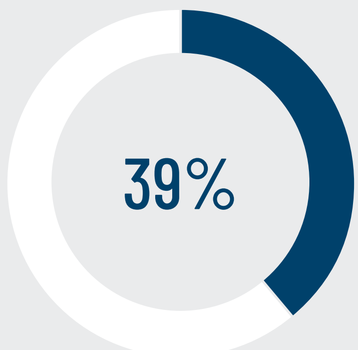
Business applications in scope

For fiscal year 2022, how many business applications are in scope for Sarbanes-Oxley compliance purposes?

	Size of organization				
	$10 billion or greater	$5 billion to $9.99 billion	$1 billion to $4.99 billion	$500 million to $999.99 million	Less than $500 million
Average	53	40	33	30	23

What percentage of these business applications are cloud applications? (Shown: average overall response)

All respondents



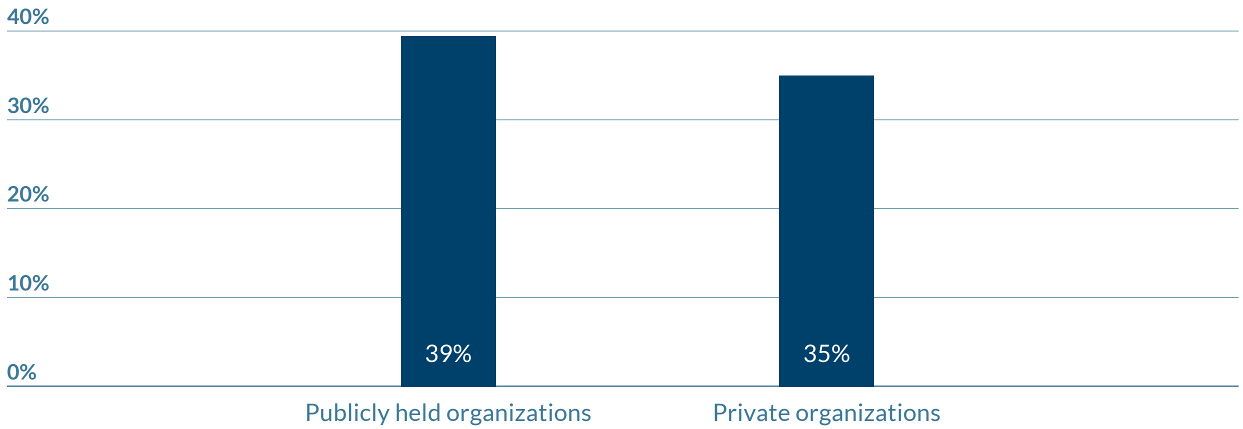
Sample size: n=564 respondents

What you need to know

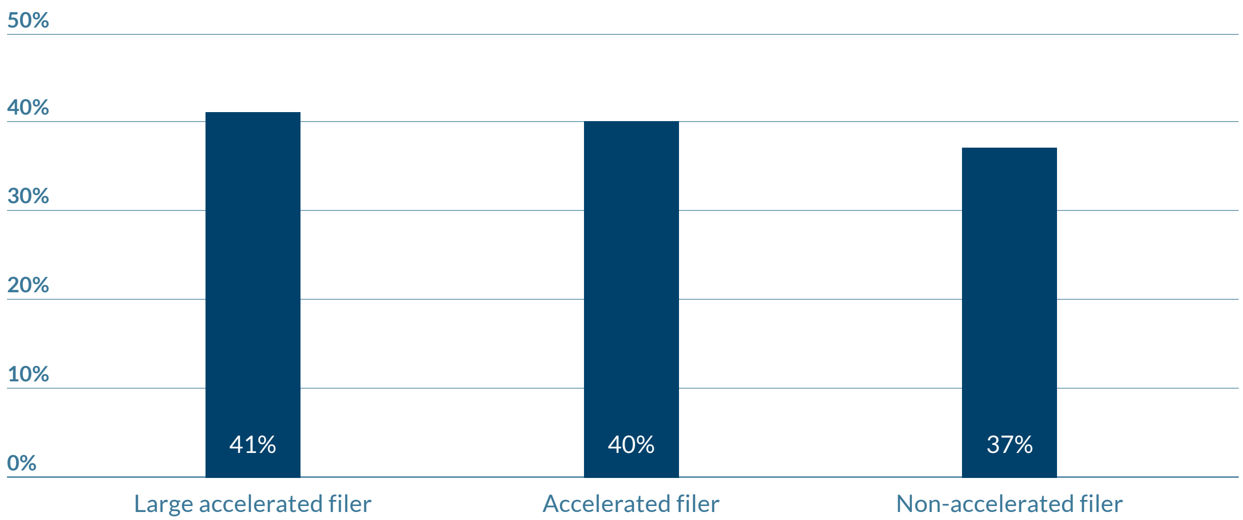
- The number of business applications in scope for SOX compliance varies depending on the size of the organization and its SOX filing status. Larger organizations and large accelerated filers tend to have higher average numbers of business applications in scope, likely reflecting the complexity of their business operations and the more significant regulatory scrutiny they face.
- Across all organizations, nearly 40% of business applications in scope for SOX compliance are cloud-based, indicating a significant shift toward cloud computing in business operations. This is not surprising given the benefits of cloud technology, such as scalability, cost-effectiveness and ease of access.

What percentage of these business applications are cloud applications? (Shown: average response)

Organization type



SOX filer status



What you need to know

- There's an interesting variance in the adoption of cloud applications based on the size and type of organization. Smaller organizations have a notably higher percentage of cloud applications, which could be due to the reduced need for upfront capital expenditure and the flexibility offered by cloud. Some of these smaller organizations may also have been "born digital," thus more digitally minded and less encumbered by legacy technologies. Public organizations and large accelerated filers also show slightly higher adoption of cloud applications, possibly driven by the increased complexity of their operations and the need for scalable, flexible technology.
- The high adoption of cloud also indicates the need for organizations to ensure they have the appropriate cloud security and governance controls in place. Organizations need to understand how to work effectively with their cloud service providers to maintain SOX compliance (beyond just reviewing their SOC 1 reports), as the shared responsibility model typically employed in cloud environments can present unique challenges. Organizations also must continue to focus on areas like cloud security, access controls, data privacy, system and platform availability, resilience, and vendor management.

What percentage of these business applications are cloud applications?

	Size of organization				
	$10 billion or greater	**$5 billion to $9.99 billion**	**$1 billion to $4.99 billion**	**$500 million to $999.99 million**	**Less than $500 million**
Average percentage	42%	35%	36%	34%	59%

Sample size: n=564 respondents

Has your external auditor focused on reviewing source code for automated controls?

	Business applications in scope		
	0-20	**21-40**	**41-100**
Yes	43%	52%	65%
No	43%	35%	32%
Unsure	14%	13%	3%

How does your organization compare?

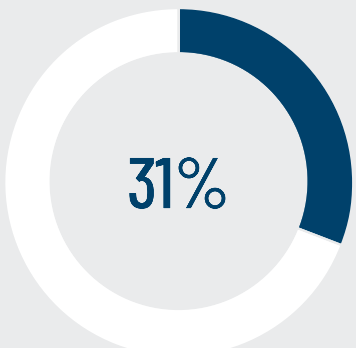
Outsourced processes and SOC reports

If you receive SOC reports, are you preparing a formal mapping between company controls and outside providers' controls (as listed in SOC reports)?

	2023
Yes	68%
No	30%
Not applicable	2%

Sample size: n=564 respondents

What portion of your SOC reports have exceptions or qualified opinions? (Shown: average overall response)

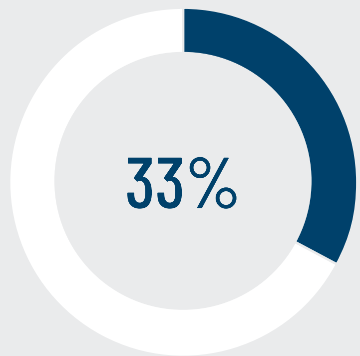


Sample size: n=564 respondents

What you need to know

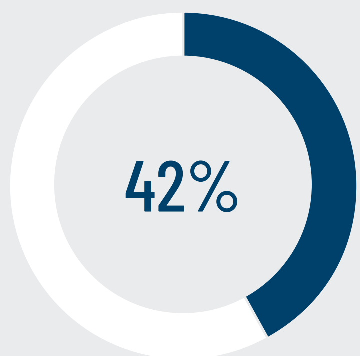
- As companies move to cloud-based solutions and outsource non-core business processes, they do not abdicate responsibility for the internal controls at these third parties. SOC reports are the primary way most organizations obtain assurance that the controls at these third parties are operating effectively. In cases where a SOC report does not exist, management must still gain assurance that controls are in place by conducting on-site audits and/or performing alternative procedures, especially if the notification of deficiencies at the service provider is not communicated timely. Also, the mismatch between SOC report assurance periods and companies' needs is something that must be planned for and appropriately addressed, often requiring bridge letters or additional procedures to be performed. Qualified SOC reports have become a challenge for companies, requiring deficiency analysis to evaluate their impact.
- Companies should continue to invest and mature their vendor management programs. The fact that 42% of organizations have had to audit their vendors directly supports this. Further, companies need to be more prepared to handle interruptions, outages and cyber incidents at their vendors and ensure their resiliency plans consider the impact on financial reporting and SOX compliance processes.

For processes that your company outsources, what percentage of the time are they able to rely solely on internal management review controls for testing outsourced provider controls? (Shown: average overall response)



Sample size: n=564 respondents

For processes that your company outsources, have you had to audit the supplier directly to gain sufficient comfort around the control environment? (Shown: “Yes” responses)

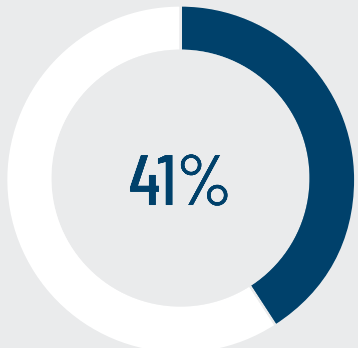


Sample size: n=564 respondents

How does your organization compare?

Cybersecurity

During fiscal year 2022, was your organization required to issue a cybersecurity disclosure (according to CF Disclosure Guidance: Topic No. 2)? (Shown: "Yes" responses)



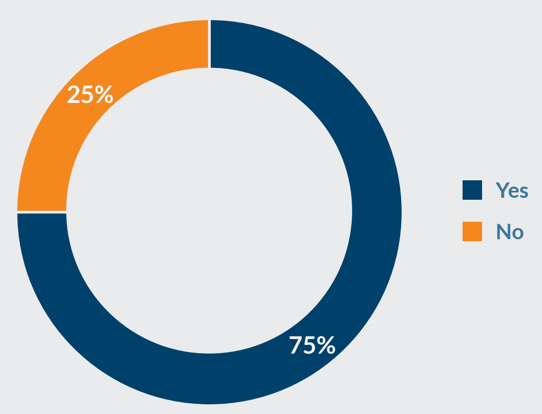
Sample size: n=564 respondents

What you need to know

- These findings underscore the increasing relevance of cybersecurity in the realm of SOX compliance. This only will increase with the SEC's adoption of its amended rules on cybersecurity disclosures. As businesses become more digital, the risks associated with breaches, data leaks and other cyber threats become more significant, which has a material impact on financial reporting and SOX compliance.
- The use of automation and enabling technology continues to rise in SOX activities and throughout the enterprise. The role of cybersecurity in ensuring the integrity of automated processes and the validity of the data they generate will become even more critical.
- A significant percentage of business applications are now cloud-based, which introduces new cybersecurity challenges. While cloud applications provide benefits in terms of scalability, cost and accessibility, they also open up new avenues for potential cyber threats, amplifying the need for robust cybersecurity controls and practices. It is becoming more commonplace for an organization to be impacted when one of its vendors has a major cyber event.
- More cyber controls that may not be in scope today will become more relevant, such as a greater focus on strategy, governance and risk management, as well as cyber program components including vendor management, security incident response and resiliency.

Deficiencies and material weaknesses

Did you have any deficiencies as of year-end? (This could include deficiencies, significant deficiencies or material weaknesses.)



Sample size: n=564 respondents

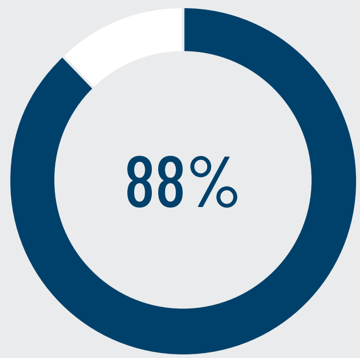
Material weaknesses (total)

	Total	Large accelerated filer	Accelerated filer	Non-accelerated filer
Yes	125	78	21	26
No	414	267	54	93

How does your organization compare?

Internal audit's role

Is internal audit involved in Sarbanes-Oxley activities in your organization? (Shown: "Yes" responses)



Sample size: n=564 respondents

How is internal audit involved in Sarbanes-Oxley activities in your organization? (Multiple responses permitted)

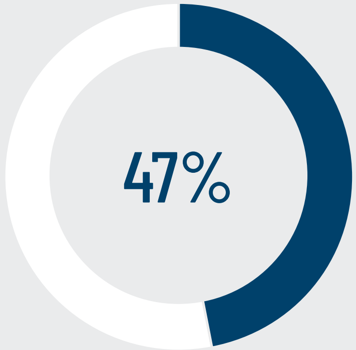
Testing	67%
Updating documentation	58%
Project management office	55%
High-level validation of management's SOX program	50%
Other	5%

Sample size: n=564 respondents

What you need to know

- In many instances, for emerging growth companies or for Section 404(a) filers, most internal audit activity is focused on SOX work. The effort to build, document and validate the internal control infrastructure, as well as to provide support related to remediation efforts that are common for new registrants, demands most of the internal audit function's resources due to the skills needed for completion.
- The fact that 88% of organizations involve their internal audit function in SOX activities underscores the critical role this group continues to play in driving SOX compliance. At the same time, this represents a significant investment (47%) of internal audit's overall time and resources.
- The most common role for internal audit in SOX activities is controls testing. This points to the value that companies place on internal audit's objectivity and expertise in evaluating the effectiveness of internal controls.
- While internal audit departments play a vital role in SOX compliance, the extensive time commitment often required for these activities potentially can detract from other critical audit responsibilities. Devoting nearly half of their time to SOX-related tasks may limit the capacity of internal audit teams to engage in more strategic, forward-looking activities.

What percentage of internal audit's time is spent on SOX? (Shown: average overall response)



Sample size: n=564 respondents

Who in your organization supports Sarbanes-Oxley testing efforts? (Multiple responses permitted)

Internal audit	74%
Management and/or process owners	54%
Project management organization (PMO)	46%
Business/financial controls unit	39%
Third-party service provider	36%

Sample size: n=564 respondents

How does your organization compare?

ESG and human capital metrics

During fiscal year 2022, did your organization apply any ICFR-type processes to your human capital reporting?

Yes	24%
No, but we plan to apply ICFR-type processes to our human capital reporting	39%
We have no plans to apply ICFR-type processes to our human capital reporting	37%

Sample size: n=564 respondents

Have you begun to address the SEC's proposed climate change disclosure requirements?

Yes, and we have added additional controls	16%
Yes, and we will need to add additional controls to address the SEC proposed climate change requirements	42%
No, but we plan to	27%
We have no plans to do so	15%

Sample size: n=564 respondents

During fiscal year 2022, did you disclose ESG metrics and apply ICFR-type processes to that information?

Yes	37%
No, but we plan to disclose ESG metrics and apply ICFR-type processes to that information	49%
We have no plans to disclose ESG metrics and apply ICFR-type processes to that information	14%

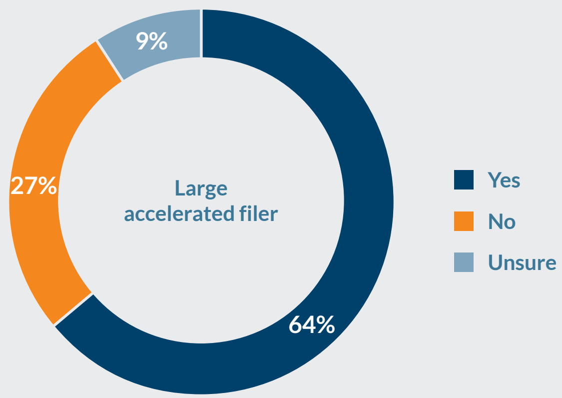
Sample size: n=564 respondents

What you need to know

- In March 2023, COSO released guidance that applies the COSO 2013 framework to Internal Control over Sustainability Reporting (ICSR). With the benefit of this guidance, public company reporting organizations will likely take a fresh look at how they gather, curate and disclose data related to areas such as greenhouse gas emissions (including the expected SEC climate change disclosure requirements) and human capital management. The COSO framework provides them with a familiar guide as they move in this direction.
- Given the EU directives around the Corporate Sustainability Reporting Directive (CSRD), which will require limited and, later, reasonable assurance for EU-headquartered companies and non-EU companies with EU operations, reporting organizations should begin preparing this non-financial data for auditability. Applying ICFR-type processes to ICSR in the context of the new COSO guidance would be a good step in that direction.
- A majority of organizations have initiated efforts to address the SEC's proposed climate change disclosure rules. This is consistent with a heightened state of awareness of the impending new requirement. It suggests companies are focusing on preparations now that the SEC has put this on the calendar in fall 2023 for likely action.

Appendix 1 – Large accelerated filers*

Has your external auditor focused on reviewing source code for automated controls?



To what extent do you test information produced by entity (IPE) for data used to execute key controls?

	Large accelerated filer
We test IPE on a rotational basis with coverage every 2-3 years	28%
We test IPE once a year for each key control that uses or relies upon it, and do not test it again if its source has not changed	37%
We test IPE every time we test a control that uses or relies upon it	32%
Unsure	3%

* Sample size: n=345 respondents

How does your organization compare?

Approximately what percentage of your SOX compliance program utilizes technology tools?

	Large accelerated filer
0%	2%
1-10%	10%
11-20%	18%
21-30%	27%
31-40%	18%
41-50%	8%
More than 50%	14%
Unsure	3%
Average percentage	**29%**

Sample size: n=345 respondents

What percentage of your controls testing do the external auditors rely upon?

	Large accelerated filer
0%	2%
1-10%	6%
11-20%	18%
21-30%	27%
31-40%	19%
41-50%	11%
More than 50%	17%
Average percentage	**32%**

Sample size: n=345 respondents

How does your organization compare?

To what extent does your organization plan to further automate its manual processes and controls within fiscal year 2022?

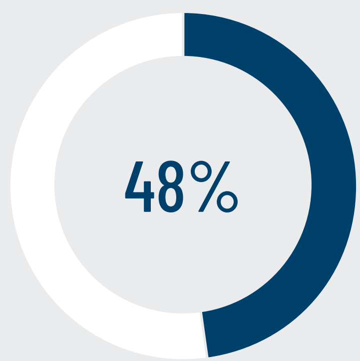
	Large accelerated filer
We have significant plans to automate a broad range of IT processes and controls	30%
We have moderate plans to automate numerous IT processes and controls	44%
We have minimal plans to automate selected IT processes and controls	23%
We have no plans to automate any further	3%

Sample size: n=345

For fiscal year 2022, how many business applications are in scope for Sarbanes-Oxley compliance purposes?

	Large accelerated filer
Average number of business applications in scope	**42**

What percentage of internal audit's time is spent on SOX? (Shown: average response)

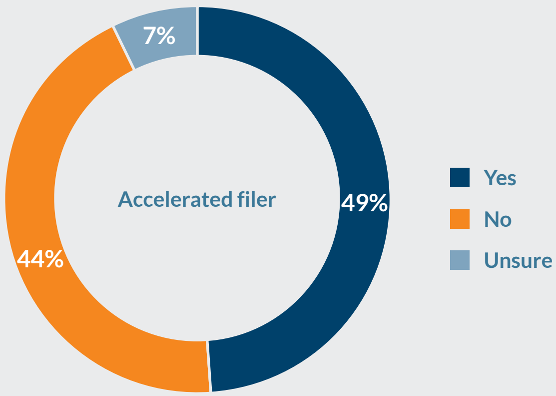


Large accelerated filer

How does your organization compare?

Appendix 2 – Accelerated filers*

Has your external auditor focused on reviewing source code for automated controls?



To what extent do you test information produced by entity (IPE) for data used to execute key controls?

	Accelerated filer
We test IPE on a rotational basis with coverage every 2-3 years	20%
We test IPE once a year for each key control that uses or relies upon it, and do not test it again if its source has not changed	25%
We test IPE every time we test a control that uses or relies upon it	47%
Unsure	8%

* Sample size: n=75 respondents

How does your organization compare?

Approximately what percentage of your SOX compliance program utilizes technology tools?

	Accelerated filer
0%	1%
1-10%	16%
11-20%	20%
21-30%	20%
31-40%	11%
41-50%	5%
More than 50%	20%
Unsure	7%
Average percentage	**29%**

Sample size: n=75 respondents

What percentage of your controls testing do the external auditors rely upon?

	Accelerated filer
0%	7%
1-10%	8%
11-20%	17%
21-30%	27%
31-40%	16%
41-50%	15%
More than 50%	10%
Average percentage	**28%**

Sample size: n=75 respondents

How does your organization compare?

To what extent does your organization plan to further automate its manual processes and controls within fiscal year 2022?

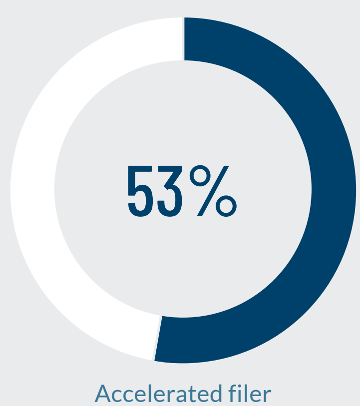
	Accelerated filer
We have significant plans to automate a broad range of IT processes and controls	16%
We have moderate plans to automate numerous IT processes and controls	45%
We have minimal plans to automate selected IT processes and controls	35%
We have no plans to automate any further	4%

Sample size: n=75

For fiscal year 2022, how many business applications are in scope for Sarbanes-Oxley compliance purposes?

	Accelerated filer
Average number of business applications in scope	**30**

What percentage of internal audit's time is spent on SOX? (Shown: average response)

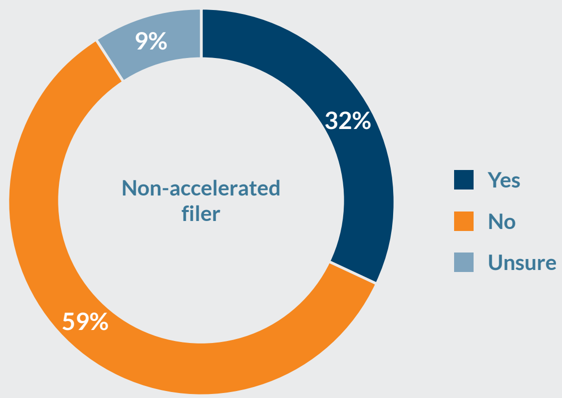


How does your organization compare?

Appendix 3 – Non-accelerated filers*

How does your organization compare?

Has your external auditor focused on reviewing source code for automated controls?



To what extent do you test information produced by entity (IPE) for data used to execute key controls?

	Non-accelerated filer
We test IPE on a rotational basis with coverage every 2-3 years	19%
We test IPE once a year for each key control that uses or relies upon it, and do not test it again if its source has not changed	43%
We test IPE every time we test a control that uses or relies upon it	35%
Unsure	3%

* Sample size: n=119 respondents

Approximately what percentage of your SOX compliance program utilizes technology tools?

	Non-accelerated filer
0%	2%
1-10%	28%
11-20%	24%
21-30%	16%
31-40%	13%
41-50%	4%
More than 50%	13%
Unsure	0%
Average percentage	**23%**

Sample size: n=119 respondents

What percentage of your controls testing do the external auditors rely upon?

	Non-accelerated filer
0%	9%
1-10%	18%
11-20%	28%
21-30%	16%
31-40%	10%
41-50%	9%
More than 50%	10%
Average percentage	**23%**

Sample size: n=119 respondents

How does your organization compare?

To what extent does your organization plan to further automate its manual processes and controls within fiscal year 2022?

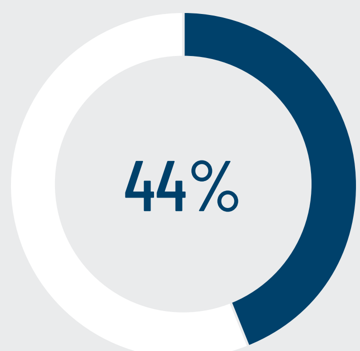
	Non-accelerated filer
We have significant plans to automate a broad range of IT processes and controls	8%
We have moderate plans to automate numerous IT processes and controls	37%
We have minimal plans to automate selected IT processes and controls	51%
We have no plans to automate any further	4%

Sample size: n=119

For fiscal year 2022, how many business applications are in scope for Sarbanes-Oxley compliance purposes?

	Non-accelerated filer
Average number of business applications in scope	**30**

What percentage of internal audit's time is spent on SOX? (Shown: average response)



Non-accelerated filer

How does your organization compare?

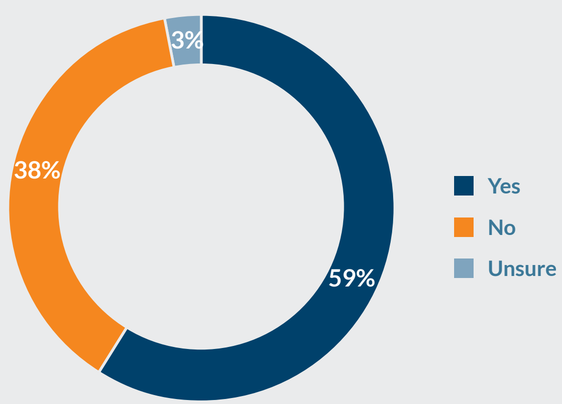
Appendix 4 – Additional results

Who completes Section 302 and 404 sub-certifications?

	Section 302	Section 404
All process owners	32%	13%
All control owners and process owners	28%	39%
Subset of business leaders	17%	8%
Subset of business leaders with a key role in internal control structure	12%	7%
A subset of control owners and/or process owners	6%	27%
We don't have a sub-certification process	5%	6%

Sample size: n=564 respondents

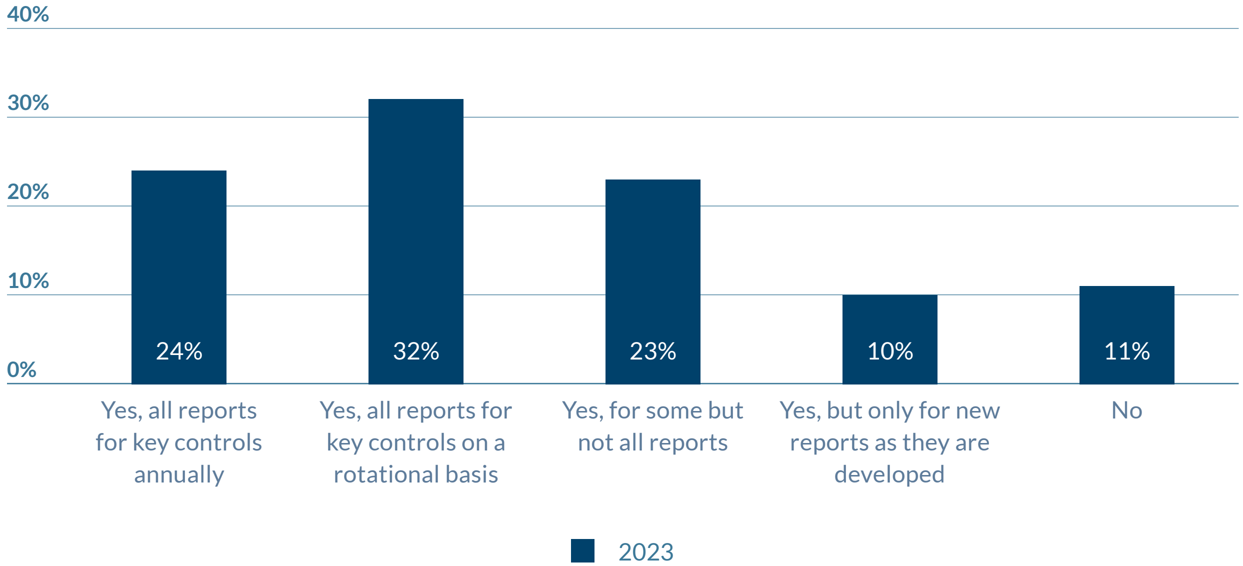
Do you complete a stand-alone fraud risk assessment?



Sample size: n=564 respondents

How does your organization compare?

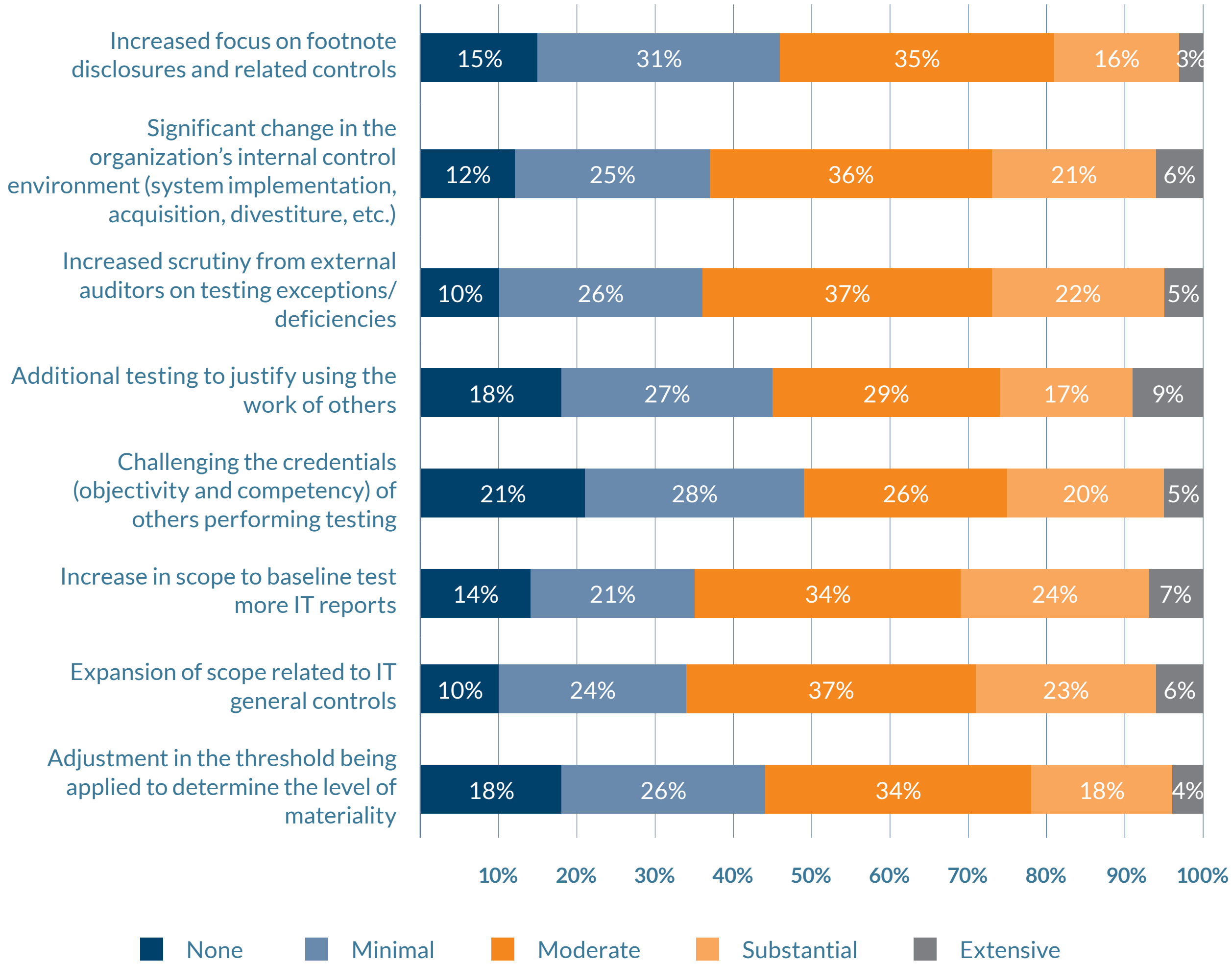
Do you baseline test system-generated reports used in key Sarbanes-Oxley controls?



Sample size: n=564 respondents

How does your organization compare?

To what degree, if at all, did you note the following changes in your organization's Sarbanes-Oxley compliance program in 2022 resulting from the external auditors' response to PCAOB inspections?



How does your organization compare?

Methodology and demographics

More than 560 respondents (n=564) participated in Protiviti's 2023 Sarbanes-Oxley Compliance Survey, which was conducted online in the second quarter of 2023. Survey participants also were asked to provide demographic information about the nature, size and location of their businesses, and their titles or positions. We are very appreciative of and grateful for the time invested in our study by these individuals.

Position

Chief Audit Executive	15%
Finance Director	14%
Finance Manager	14%
Corporate Controller	14%
Corporate Sarbanes-Oxley Leader/PMO Leader	10%
Audit Manager	10%
Chief Financial Officer	9%
Audit Director	7%
Audit Staff	3%
Chief Risk Officer	1%
Risk Management	1%
Business Unit Control Leader	1%
Other	1%

How does your organization compare?

Industry

Manufacturing (other than Technology)	8%
Technology (Software/High-Tech/ Electronics)	7%
Financial Services — Banking & Capital Markets	6%
Insurance (other than Healthcare Payer)	4%
Retail	4%
Oil and Gas	4%
Healthcare Provider/Services	4%
Biotechnology/Medical Devices	3%
Telecommunications and Data Infrastructure	3%
Automotive	3%
Power and Utilities	3%
Professional Services	3%
Transportation and Logistics	3%
Financial Services — Asset & Wealth Management	3%
Real Estate	3%
Financial Services — Other	3%
Consumer Packaged Goods	3%
Hospitality, Leisure and Travel	3%
Mining	3%
Financial Services — Mortgage & Consumer Lending	3%
Media and Entertainment	3%
Pharmaceuticals and Life Sciences	3%
Chemicals and Materials	2%
Construction	2%
Healthcare Payer/Insurance	2%
Renewables	1%
Financial Services — Payments	1%
Agriculture, Forestry and Fishing	1%
Construction Aggregates and Building Materials	1%
Healthcare — Integrated Delivery Systems (Provider & Payer)	1%
Higher Education	1%
Warehousing/Distribution	1%
Airlines	1%
Equipment Rental	1%
Government	1%
Other	2%

How does your organization compare?

Size of organization (outside of financial services) — by gross annual revenue

$10 billion or more	20%
$5 billion - $9.99 billion	17%
$1 billion - $4.99 billion	34%
$500 million - $999.99 million	21%
$100 million - $499.99 million	5%
$25 million - $99.99 million	2%
Less than $25 million	1%

Size of organization (within financial services) — by assets under management

$50 billion or more	26%
$25 billion - $49.99 billion	21%
$10 billion - $24.99 billion	22%
$5 billion - $9.99 billion	16%
$1 billion - $4.99 billion	10%
$250 million - $999.99 million	2%
Less than $250 million	3%

Current SOX compliance reporting status

Beyond 2nd year of SOX compliance 404(a) and 404(b)	49%
2nd year of SOX compliance 404(a) and 404(b)	16%
1st year of SOX compliance 404(a) and 404(b)	14%
Ongoing 404(a) SOX compliance	13%
1st year of SOX compliance 404(a)	6%
Pre-1st year SOX compliance	2%

How does your organization compare?

SOX filer type

Large accelerated filer	64%
Accelerated filer (not smaller reporting company)	14%
Smaller reporting company (meets the SEC requirements for market capitalization and revenue to be exempt from Section 404(b))	7%
Emerging growth company under the JOBS Act of 2012	15%

Number of unique locations

1	22%
2-3	30%
4-6	24%
7-9	9%
10-12	4%
More than 12	11%

Organization headquarters

United States	94%
Canada	1%
France	1%
Germany	1%
Israel	1%
Italy	1%
Singapore	1%

How does your organization compare?

Organization type

Publicly held, for profit entity	88%
Publicly held, for profit entity via merging with SPAC in a 'De-SPAC' transaction	3%
Privately held, for profit entity preparing to become publicly held	3%
Privately held, for profit entity no current plans to become publicly held	3%
Privately held, for profit entity with registered debt securities	2%
Non-profit organization	1%

How does your organization compare?

ABOUT PROTIVITI

Protiviti (www.protiviti.com) is a global consulting firm that delivers deep expertise, objective insights, a tailored approach and unparalleled collaboration to help leaders confidently face the future. Protiviti and our independent and locally owned Member Firms provide clients with consulting and managed solutions in finance, technology, operations, data, analytics, digital, legal, HR, governance, risk and internal audit through our network of more than 85 offices in over 25 countries.

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PROTIVITI INTERNAL AUDIT AND FINANCIAL ADVISORY PRACTICE — CONTACT INFORMATION

Andrew Struthers-Kennedy
Managing Director
Global Practice Lead, Internal Audit and Financial Advisory
+1.410.454.6879
andrew.struthers-kennedy@protiviti.com

Angelo Poulikakos
Managing Director
Global Practice Lead, Technology Audit and Advisory
+1.312.476.6097
angelo.poulikakos@protiviti.com

AUSTRALIA

Garran Duncan
+61.03.9948.1200
garran.duncan@protiviti.com.au

BELGIUM

Marc Geleijn
+31.20.346.0400
marc.geleijn@protiviti.nl

BRAZIL

Fernando Fleider
+55.11.2198.4200
fernando.fleider@protiviti.com.br

CANADA

Ram Balakrishnan
+1.647.288.8525
ram.balakrishnan@protiviti.com

CHINA (MAINLAND CHINA)

Francis Zhang
+86.21.5153.6900
francis.zhang@protiviti.com

CHINA (HONG KONG)

Vincent Leung
+852.2238.0429
vincent.leung@protiviti.com

FRANCE

Bernard Drui
+33.1.42.96.41.16
bernard.drui@protiviti.fr

GERMANY

Tobias Nowak
+49.89.552.139.321
tobias.nowak@protiviti.de

INDIA

Puneet Gupta
+91.124.661.8660
puneet.gupta@protivitiglobal.in

ITALY

Alberto Carnevale
+39.02.6550.6301
alberto.carnevale@protiviti.it

JAPAN

Yasumi Taniguchi
+81.3.4577.3980
yasumi.taniguchi@protiviti.jp

MEXICO

Roberto Abad
+52.55.6729.8070
roberto.abad@protivitiglobal.com.mx

MIDDLE EAST

Sanjay Rajagopalan
+965.2295.7772
sanjay.rajagopalan@protivitiglobal.me

THE NETHERLANDS

Marc Geleijn
+31.20.346.0400
marc.geleijn@protiviti.nl

SINGAPORE

Ann Koh
+65.6220.6066
annchi.koh@protiviti.com

SOUTH AFRICA

Lindani Dhlamini
+27.011.797.6800
ldhlamini@skxprotiviti.co.za

SWITZERLAND

Matt Liang
+41.79.887.5874
matt.liang@protiviti.ch

UNITED KINGDOM

Mark Peters
+44.207.389.0413
mark.peters@protiviti.co.uk

UNITED STATES

Andrew Struthers-Kennedy
+1.410.454.6879
andrew.struthers-kennedy@protiviti.com

THE AMERICAS

UNITED STATES
Alexandria, VA
Atlanta, GA
Austin, TX
Baltimore, MD
Boston, MA
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