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Gartner for Audit Leaders

The Digital Audit Function: Optimize Processes, Transform Assurance

Audit must become digital, but what does that mean? What capabilities should CAEs aim to develop? Use this research to understand the concept of a digital audit function, set a strategy for your digital journey and explore specific applications of technology to audit activities and processes.

Overview

In an era of enterprisewide digitalization, how should chief audit executives (CAEs) focus their efforts toward digitalizing the audit function? Digitalization promises to improve efficiency and drive stronger assurance outcomes, but CAEs face challenges both in determining the right strategy and executing it. This research guides this process by defining the attributes and capabilities of a digital audit function and illustrating how specific applications of technology can improve audit's work.

Key findings

- A digital audit function embeds data and technology into all applicable processes and aspects of the audit's work and cultivates a technology-forward mindset among its staff. Technology is used to both optimize existing workflows, techniques and processes and transform the function by developing new ones.
- Digital audit functions are proficient in six key capabilities: data usage, digital skills development, deployment of technology in audit workflows, coverage of the business's use of data and technology, prioritizing technology investments, and enhancing user experience.
- Digital audit functions apply technology tools both to managing function workflows and performance and to all applicable assurance activities, including risk assessment, fieldwork and communication of findings.

Recommendations

To make progress toward digitalizing the audit function, CAEs should:

- Improve audit efficiency and effectiveness by embedding technology use in all applicable audit activities and department workflows, including both audit and assurance activities as well as department operations.
- Empower their team to meet the demands of digital auditing by building digital literacy skills and dispositions, growing auditors' digital ability and digital ambition.
- Develop a strategy for digitalization by assessing needs and opportunities for optimization vs. transformation of audit processes and techniques, and targeting the appropriate outcomes.
- Implement targeted technological improvements in your department's workflows by selecting relevant priorities from a range of possible technology applications, such as continuous risk assessment, process mining, automated communication and performance dashboards for managing department workflows.

In today's organizations, digital technologies are being incorporated into all aspects of operations. Organizations must become digital or be increasingly vulnerable to disruption and competition from more tech-savvy rivals. Digitalization is therefore a top priority for organizations — 89% of nonexecutive board members now see digital as an implicit part of all corporate growth strategies, rather than as a separate and distinct strategy.[1]

This broad trend toward digitalization extends to audit, as well. Audit departments must become more digital in both their auditing methods and their operations in order to keep pace with their organizations. Digital technology can improve both efficiency and effectiveness, allowing audit to better fulfill its assurance mandate by covering more risks with greater impact. Audit must also equip itself to provide assurance over the organization's increasingly digital processes — audit must be able to use technology in order to audit technology.

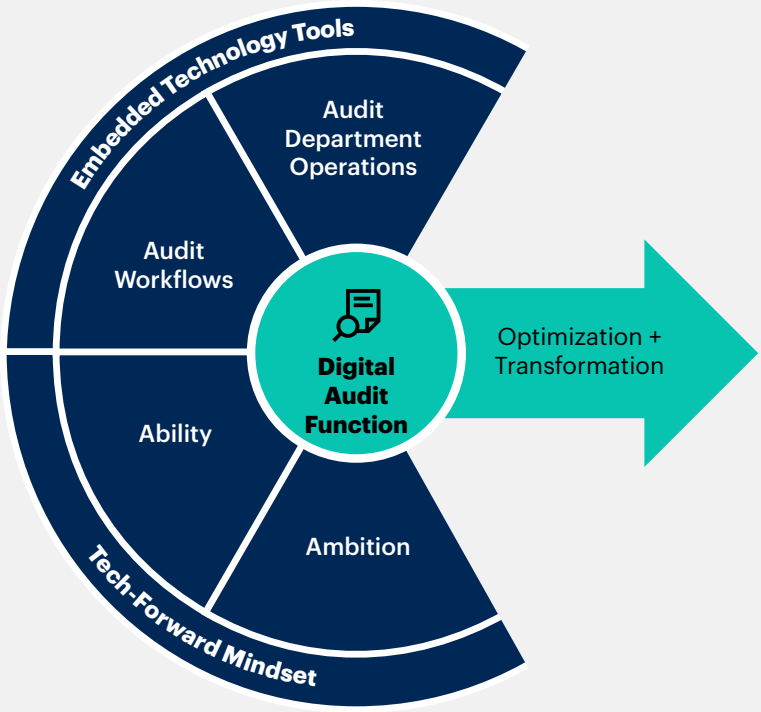
However, what it means to become a digital audit function is not obvious. How should CAEs set their strategy and measure progress? This research outlines a vision for the digital audit function — what it is and what it does — and provides CAEs with a guiding star for charting their course toward digitalizing the audit function. This research defines the digital audit function, clarifies digitalization objectives, details the capabilities digital audit functions exhibit, and illustrates specific technology applications and use cases.

Defining and enabling a digital audit function

A digital audit function goes beyond narrow and limited applications of data and technology and embeds their use into all aspects of the audit's operation. This includes integrating technology both into people and processes, so that digital skills and the application of digital tools are core.

The embedded use of technology and the adoption of a tech-forward mindset among all audit staff enables departments to achieve both optimization and transformation. Timesaving technology brings greater efficiency and productivity, while new technology enables transformation via the development of different-in-kind approaches.

The Digital Audit Function



Source: Gartner

Embedding technology involves incorporating it into both audit workflows and department operations. For example, auditing processes and techniques such as risk assessment and controls testing can become more thorough and dynamic through the incorporation of technology. In terms of function management, technology empowers CAEs to better monitor the progress of audits and the performance of auditors, as well as streamline and evolve the department's workflows.

As technology becomes more and more embedded into audit's work, auditors must have the right skills and dispositions to make full use of tools and techniques. A digital audit function therefore cultivates a tech-forward mindset within its staff, combining a set of skills — digital ability — with the drive to innovate — digital ambition.

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Building a tech-forward mindset

As CAEs work to develop auditors' digital skills, they will find a range of skills already within their teams, with certain specialists such as data scientists or IT auditors exhibiting advanced skills in specific areas. With the growth of data analytics in audit — 90% of audit departments use it in engagement fieldwork[2] — data literacy has become a core competency for all audit staff. In our previous research we defined data literacy as the ability to:

- Connect risks to relevant organizational data
- Identify relevant organizational datasets and sources
- Source data
- Understand data and analytical concepts and principles
- Evaluate the quality of a dataset
- Recognize when data is used in an inappropriate or misleading way
- Confidently tell a relevant business story using data and visualizations
- Identify innovative new ways to leverage data across audit work

Because data analytics is a central capability of digital audit functions, these skills remain essential for all audit staff. However, just as data analytics is only one part of what it means to be digital, auditor skills must go beyond data literacy to establish a baseline set of digital literacy attributes for all staff members. Digital literacy includes four essential competencies that all auditors should exhibit:

- **Recognition —** The capacity to see problems through a technological lens and ascertain where and how technology can be leveraged
- **Proficiency —** The ability to use or learn to use a variety of software tools, including tools for data analysis, content production, communication, collaboration and project management
- **Awareness —** A broad understanding of the various technological solutions used throughout different business processes and their impacts on risks and controls
- **Connection —** Insight into which problems require more in-depth technical expertise and the ability to identify and collaborate with relevant subject-matter experts

A tech-forward mindset not only ensures auditors have the right skills to execute technology integrations, but also fosters their support for and engagement with the department's digitalization efforts. Audit at Synchrony prioritized the development of auditor buy-in and a tech-forward mindset as part of its digital innovation initiative.

Case in Point: Strategy for Digital Innovation Initiatives (Synchrony)

Audit at Synchrony sought to improve overall department efficiency through digital innovations that simplify and automate audit processes. To ensure these initiatives were successful, audit leadership prioritized the cultivation of auditor buy-in. Audit held a series of design-thinking workshops to solicit ideas for process improvements directly from auditors. The innovation team then compiled these ideas into a "book of dreams" that could be used to set the agenda for technology investments.

As innovations moved to the implementation phase, Synchrony designated specific audit staff as "ambassadors" to promote engagement with new digital tools. Ambassadors were among the first to use new tools and technologies, and they helped shift the mindset of the team to focus on digital platforms. With the help of ambassadors, the innovation team completed 10 quick-win projects and built a foundation of support for digital initiatives among audit staff.

Digital audit outcomes: Optimization and transformation

CAEs face pressure from above to become more digital and are also driven to keep up with the other functions in the organization. Forty-seven percent of CAEs report that the audit committee is increasing its expectations for innovation within the audit department.[3]

CAEs also identify specific technology areas where the audit committee expects substantial progress. These include better integration of data analytics into audit's work (37%), greater use of automation and advanced technologies within the audit department (32%), and greater use of continuous monitoring and continuous risk assessment (30%).[3]

But CAEs find this work challenging. Only 16% are confident in their ability to make the leap to more advanced analytics applications — and adopting technology tools simply for the sake of "digitalizing" or chasing the latest trends can lead to wasted time and money for limited value.[4] CAEs must therefore set clear goals defining the outcomes of becoming more digital.

The adoption of digital technologies can have two kinds of outcomes: optimizing existing processes or transforming processes and methodologies by introducing new techniques and approaches. Both are valid, worthwhile outcomes, but clarity on the purpose of introducing new technologies is essential.

Optimization involves applying technology to improve on audit's current methods and processes, making them more efficient and effective. Examples of optimization include:

- Using dashboards to track function performance and the progress of audits
- Using data visualization tools to increase the impact of communication
- Automating routine tasks

Transformation involves pushing beyond the current capabilities and approaches used in audits by adopting net new digital techniques. Examples of transformation include:

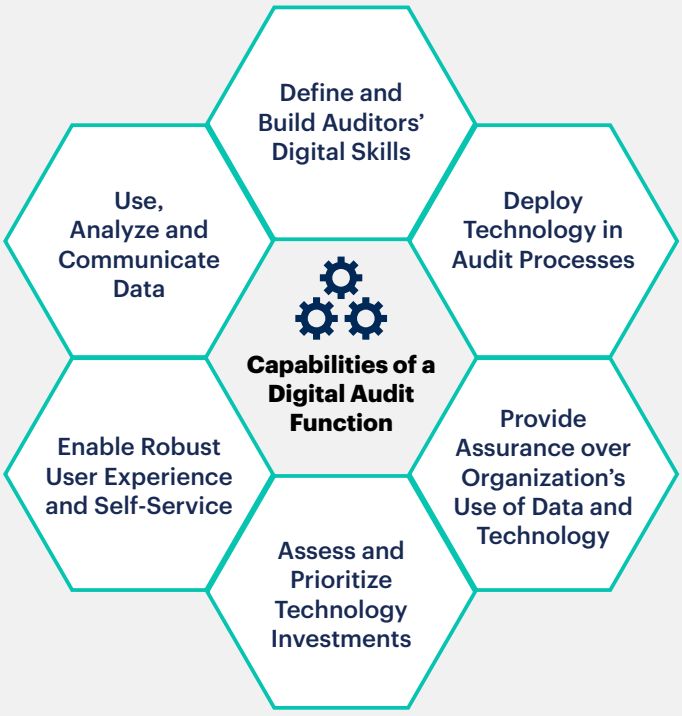
- Deploying advanced data analytics techniques, such as predictive modeling, to strengthen assurance outcomes
- Discovering new insights by using techniques such as natural language processing or process mining
- Generating analysis of high volumes of information by leveraging machine learning models
- Using generative AI to assist in writing, summarization or coding tasks

Becoming a digital audit function involves using technology both to do things better and to do better things. Success in the digital journey requires CAEs to be clear about these two goals, as well as what results are expected from specific initiatives. Specifying whether a particular technology initiative is intended to achieve optimization or transformation helps CAEs set expectations, define project scope and measure success.

Capabilities of digital audit functions

A digital audit function is not a state so much as a set of capabilities — digital audit functions can do more things, more effectively, than their nondigital counterparts. We identify six kinds of capabilities as integral to what a digital function can do.

Capabilities of a Digital Audit Function



Source: Gartner

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The scope and impact of these capabilities can be contrasted with nondigital versions (see Table 1).

Table 1: Characteristics of Digital versus Nondigital Audit Functions

Area	Nondigital	Digital	Gartner Resources to Support Progress
Use, Analyze and Communicate Data	• Data may be used but in an ad hoc, one-off way. • Manual processes for collection and analysis.	• Auditors can locate all relevant data, with processes in place to clean, transform and validate. • Data collection and analysis are automated where appropriate. • Auditors can make use of connected data from across the business to arrive at better insights.	• Structuring an Audit Data Analytics Program • Ignition Guide to Increasing the Use of Data Analytics in Audit • Communicating With Data Visualizations • Overcoming Common Audit Data Visualization Mistakes
Define and Build Auditors' Digital Skills	• Traditional auditing skills determine competencies. • Specialized data and technology skills are either not present in the department or held by only a few individuals.	• All auditors are expected to meet a baseline of digital literacy and to bring an awareness of how data and technology may be used in audit processes. • Auditors are encouraged to develop more advanced skills in champion roles. • CAEs and department leaders effectively grow auditors' skillsets	• Structuring a Data and Analytics Literacy Upskilling Program for Audit • Built for Change: Architecting Audit's Expertise • Case Study: Motivate Audit Talent to Build New Skills (adidas)

Area	Nondigital	Digital	Gartner Resources to Support Progress
Deploy Technology in Audit Processes	• Auditing is often limited to manual tests of samples. • Analysis methods are highly human-driven. • Technology use may be piecemeal or inconsistent.	Technology and advanced testing techniques are consistently leveraged in all relevant audit engagements and processes.	• Quick Answer: Process Mining Use Cases for Internal Audit • Robotic Process Automation (RPA) and Internal Audit • RPA and Advanced Technology Use-Case Library
Provide Assurance Over Organization's Use of Data and Technology	Audit is either unaware of or unable to provide assurance over the business's data and uses of advanced technology tools, leading to assurance gaps.	• Audit is familiar with data systems and advanced technologies used throughout the business. • Auditors can assess risks related to these technologies and provide assurance over the business's use.	• Research Roundup ■ for IT Auditing • Developing Data and Analytics Governance Audit Activities • Guide to Understanding and Developing Initial Approaches to Auditing AI-Related Risks
Assess and Prioritize Technology Investments	Investments in technology are ad hoc and may not consistently add value.	• Technology investment options (both software and skills) are rigorously assessed and prioritized. • Technology initiatives are adopted as part of a strategic plan.	Prioritize Technology Investments to Drive Audit Digitalization

Area	Nondigital	Digital	Gartner Resources to Support Progress
Enable Robust User Experience and Self-Service	User experience for both auditors and stakeholders creates barriers to efficiency and ease of use.	• Development of tools, applications, dashboards and other solutions is optimized for effective user experience. • Auditors and stakeholders can effectively leverage solutions through self-service.	• 3 Principles for Designing Effective Audit Dashboards • Case Study: Auditor Rapid-Response Chatbot to Improve Efficiency

Source: Gartner

Many audit departments have made progress in some aspects of these capabilities, but few have achieved maturity in all six. For example, only 12% of CAEs are highly confident in their department's ability to provide assurance over emerging technologies, and only 38% are highly confident they can effectively prioritize their investments.[4]

To make progress on their digitalization journey, CAEs should work to grow their capabilities across all six characteristics. The process of developing them may not be uniform, and departments may achieve proficiency in some areas more quickly than others. For example, growth in data usage and analytics techniques is a natural starting point, since almost all departments are already doing some level of analytics. As they grow in their capabilities and confidence, departments can expand their efforts to encompass other capabilities and applications.

Applications of digital technology in audit

The specific applications of technology that can be used in a digital audit function fit into two categories. First, there are the technologies that can be used within audit engagements and other assurance and advisory activities — technology in auditing. Second, there are technologies that aid in the management of the audit function, its internal operations, processes and workflows — technology for audit.

Technology uses in auditing and assurance

Digital audit functions use a range of technology applications for different assurance activities, including risk assessment and audit planning at both the department and engagement level, fieldwork and testing, and communication of findings and outcomes.

Departmental risk assessment and audit planning

Risk assessment is a labor- and time-intensive process that, in a nondigital setting, involves a high volume of manual and qualitative inputs such as interviews and scenario exercises. A more digital approach enables greater use of data and a more real-time analysis.

Data-driven continuous risk assessment, which leverages ongoing monitoring of key risk indicators (KRIs) to sense changes in the risk landscape, is a leading use case for digital tools in risk assessment. Digital audit functions can also leverage predictive analytics techniques. These approaches use machine learning models to assess the likelihood of future events, allowing for even greater agility than monitoring of potentially lagging KRIs. RBC's automated risk detection tool illustrates the use of data and machine learning for risk assessment.

Case in Point: Machine-Learning-Based Risk Detection (RBC)

RBC developed an automated risk assessment tool — RaptOR (Risk Assessment Planning Tool and Organizer) — to facilitate continuous risk monitoring and dynamic audit planning. The tool continuously monitors the risk profiles of each audit entity using a composite of key risk indicators (KRIs), key performance indicators (KPIs), and key controls indicators (KCIs) from both internal and external data sources. The tool leverages a combination of statistical and machine learning techniques to measure deviations in risk profiles compared to historical baselines. The model flags elevated risks, which can then be used as an input in forming or adjusting the audit plan.

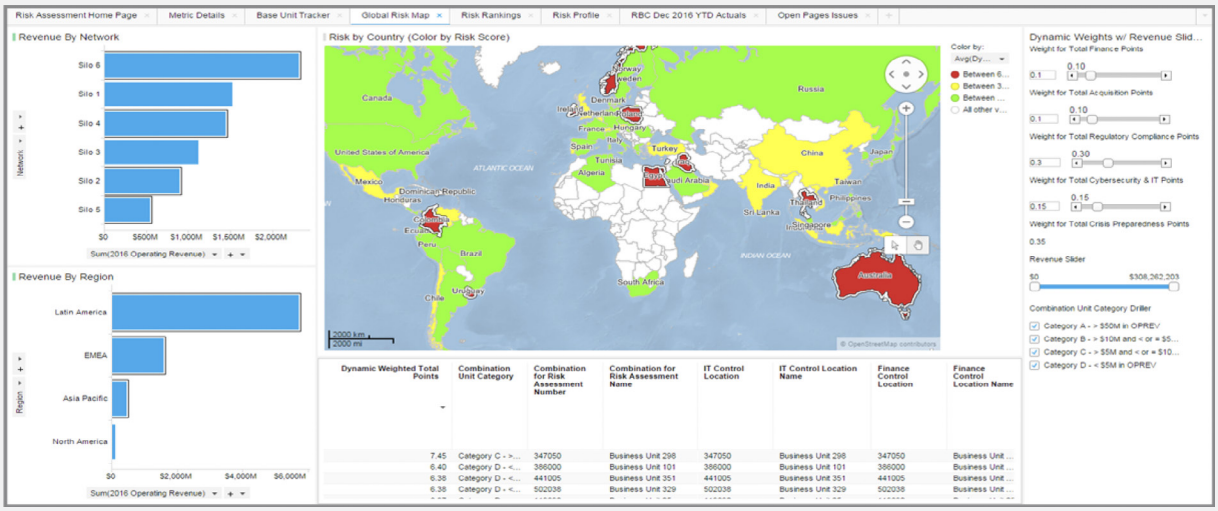
Departments that leverage a continuous risk assessment process can maximize the value of this data by adopting a more flexible approach to the annual audit plan, with updates on a quarterly or continuous basis as needed. IPG leverages its continuous risk assessment dashboard to enable adjustments to the audit plan in response to new risk information.

Case in Point: Continuous Risk Assessment Dashboard (IPG)

To increase audit department efficiency and improve the audit plan's targeting, audit at IPG created an interactive risk dashboard. The dashboard's development followed an iterative process of sourcing and testing potential KRIs. This ensured audit and stakeholders had a high degree of confidence in each KRI's relevance and effectiveness before including it in the dashboard.

The dashboard also incorporates the ability to dynamically adjust risk ratings at both the category and individual KRI level. This allows the audit to reconfigure the dashboard's outputs to reflect qualitative information about changes to the risk environment. Data from continuous risk assessments enables updates to audit and resource plans and targeting engagement scopes based on changes in KRIs. The tool also primes the audit committee to accept changes to the plan, since it knows they are triggered by reliable and timely risk information from the continuous risk assessment.

Sample Risk Assessment Dashboard With Risk Weightings



Source: Gartner

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Audit engagements

Data analytics is an increasingly common element of audit engagements, particularly in fieldwork and controls testing. Digital functions can take data analytics beyond the basic threshold of full population tests by using connected data to enable deeper insights. They can also leverage advanced techniques such as predictive modeling and incorporate data in more than just testing, such as scoping and prioritizing within the audit itself.

Data analytics tests can also be automated to enable continuous assurance practices, including continuous monitoring, continuous auditing and continuous risk assessment.

Many other digital tools and techniques can be leveraged in auditing, in addition to data analytics, and the scope of available technologies is constantly expanding. Growing advanced techniques include:

- Robotic process automation (RPA) to streamline manual processes
- Natural language processing to analyze textual information
- Classification algorithms to handle unstructured data sources
- Process mining to track the actual execution of business processes and pinpoint variations across business units or geographies
- Analysis of digital twin models as a proxy for site visits or monitoring of physical systems

Audit at Rabobank leveraged process mining to gain insight into the quality of branch-based customer review processes.

Case in Point: Process Mining for Customer Due Diligence (Rabobank)

Rabobank's internal audit data excellence team started using process mining to help auditors get a comprehensive and accurate picture of processes. Among other applications, the team now uses process mining to identify inefficiencies in the customer review process by benchmarking the process flow in different branches.

While the high-level review process is standard throughout Rabobank, certain aspects are still open to interpretation by each branch. Branches decide who approves the initial review of a junior reviewer, when and how long the cases are open, and how frequently the cases are reopened. Branches may also adjust the process depending on a case's level of priority.

Rabobank's audit team uses process mining to assess the efficiency and quality of these review processes. The audit has created a process map for each individual branch to benchmark their review processes and identify best practices to share with other branches. As a result, process mining has helped to standardize and optimize the reviews.

Advanced digital technologies can also be deployed in auditing the organization's IT systems and processes — using tech to audit tech. For example, Walmart used RPA to strengthen IT auditing methods.

Case in Point: ITGC Server Password Bot (Walmart)

To increase efficiency and reduce time spent on repetitive tasks, audit at Walmart developed an RPA bot to automate parts of its IT SOX testing program. The bot extracts and parses data from servers, tests password attributes to ensure compliance with policies and standards, and automatically exports findings into Excel files and emails them to stakeholders.

Although the initial development of the bot required an investment of time and resources, the long-term savings were significant. The bot compressed tests that took auditors about three hours to conduct manually down to an average of 20 seconds. These efficiency gains have allowed the department to broaden coverage and for individual auditors to focus on other, higher-priority tasks.

Communication of findings and outcomes

Digital audit functions also deploy technology to improve the efficiency and impact of their communications. Communicating effectively with data means creating clear visualizations and building compelling narratives. Digital functions can also streamline communication with stakeholders via dashboards showing KRIs as a supplement to reports. They can also save time in the report-writing stage by automating reporting based on templates, and generative AI technologies may soon be deployed for this use case.

Enterprise Holdings improved communication of findings from continuous monitoring of transactions for potential fraud by building a dashboard to consolidate information for stakeholders.

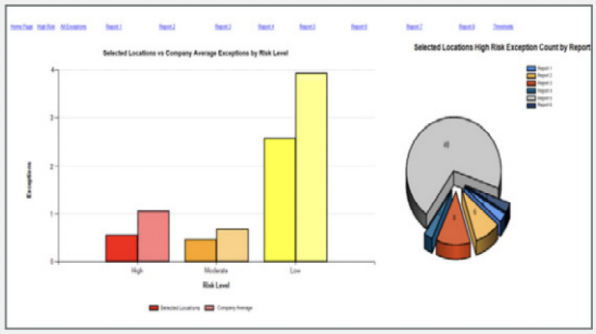
Case in Point: Continuous Monitoring Dashboard (Enterprise Holdings)

Based on feedback about the volume of reports to review, Enterprise Holdings created a continuous monitoring dashboard compiling several legacy fraud detection reports into a single view to make monitoring more efficient.

The dashboard helps the business focus on high-risk items without having to do a lot of their own analysis to find those items. Potential fraudulent transactions are categorized into "high," "moderate" and "low" risk based on predetermined factors. While not all available continuous monitoring reports are included in the dashboard, it enables users to perform a more focused review.

This results in less time spent running and analyzing reports, significantly reducing the time the business spends on continuous monitoring reviews. Once created, the dashboard is handed over to the business, so the audit only needs review to ensure the business is reviewing the dashboard per the company's continuous monitoring accounting policy.

Enterprise Holdings' Continuous Monitoring Dashboard Screenshot



Home Page | High Risk | All Exceptions | Report 1 | Report 2 | Report 3 | Report 4 | Report 5 | Report 6 | Report 7 | Report 8 | Thresholds

HIGH RISK EXCEPTION SUMMARY

Group	Region	Report Name	Risk Level	Exception Type	Exception Detail
A	A1	Report 1	High	Exception Count: 1	
		Total Regional High Risk			
	A2	Report 1	High	Exception Count: 6	
		Report 2	High	Exception Count: 5	
		Report 3	High	Exception Count: 4	
		Report 4	High	Exception Count: 2	
		Report 5	High	Exception Count: 1	
		Report 6	High	Exception Count: 1	
		Total Regional High Risk			
	A3	Report 1	High	Exception Count: 42	
		Total Regional High Risk			
	A4	Report 2	High	Exception Count: 3	
		Report 4	High	Exception Count: 2	
		Report 7	High	Exception Count: 1	
		Total Regional High Risk			

Source: Enterprise Holdings

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Technology uses for audit department operations

Digital audit functions not only use technology in their work but also for how they work. They leverage technology to manage the audit's departmental operations, measure and track performance and streamline internal collaboration. Some examples of function management applications of the technology include:

- Technology-enabled project management for audits, for example, through an audit management system or other project management platform
- Cross-functional data and information sharing for aligned assurance efforts, for example, through a governance, risk and compliance tool
- Communication and collaboration applications, including chat tools and cloud-based file sharing and version control tools
- KPI monitoring and dashboards for tracking department and individual performance, including for quality assurance efforts

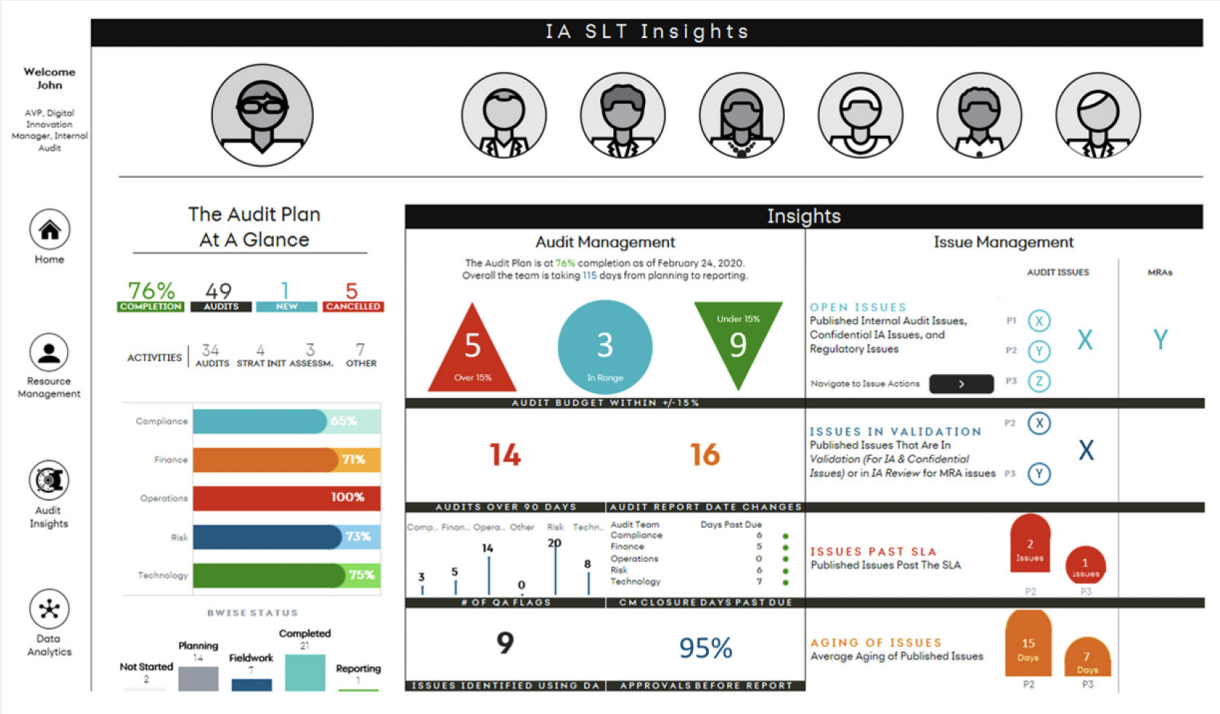
Audit at Synchrony developed an internal dashboard to monitor audit progress and auditor efficiency.

Case in Point: Audit Operations Dashboard (Synchrony)

As the assurance demands on audit increase, CAEs and audit department leadership need a centralized way to track department operations and enable decisions in order to assess and improve department efficiency. Synchrony's audit leadership team uses an internal activity dashboard to see a real-time overview of department operations.

Synchrony's dashboard and its simple visualizations enable the CAE and different members of audit leadership to make quick decisions to improve department performance. Each audit leader has a tab to quickly view their team's work status, while the CAE can either maintain a departmentwide view or drill down into each of their direct report's teams. The dashboard helps audit leadership "run audit like a business" by using data to monitor KPIs (such as issues past due, audit budgets and engagements over 90 days) and quickly address issues as they arise.

Audit Department Business Analytics Dashboard



Source: Adapted From Synchrony

Conclusion

The journey to a digital audit function will be an ongoing one, and as technology continues to evolve, so too will the applications and use cases impacting the audit's work. The core concept of a digital audit function will remain stable, however — embedding technology tools into both mindset and processes in order to achieve both optimization and transformation. Though the process of digitalization will never be complete, CAEs can accelerate their progress by aligning their strategy and decision making to this vision and prioritizing practical technology applications to strengthen assurance outcomes.

Evidence

[1] 2023 Gartner Board of Directors Survey on Business Strategy in an Uncertain World

[2] 2022 Gartner Audit Department Structure and Operations Benchmarking Survey

[3] 2022 Gartner Audit Key Priorities and Risks Survey

[4] 2023 Gartner Audit Key Priorities and Risks Survey

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