Whitepaper

Internal audit has an innovation problem. Data analytics can help.

In today's economy, success is synonymous with technological innovation. Technology is driving rapid change in every sector of business. Machine learning, artificial intelligence, the Internet of Things, cloud computing, drones, bots, and blockchain are transforming not only the nature of work but the means of survival. In the new innovation-driven economy, the continued relevance of a given job, department, company, or industry is guaranteed only insofar as it embraces and capitalizes on the opportunities afforded by these advancements. Every possible competitive edge—from talent to timing to intelligence—can be maintained only through the speed, efficiency, and breadth technology delivers. Only those who welcome rather than ignore or hide from our technology-driven future stand a chance of succeeding in it.

Innovation-fueled organizations need innovation-fueled internal audit functions. Indeed, the risks and complexity introduced by rapidly changing business environments have placed increasing demands on internal audit teams, often without accompanying increases in resources. Fortunately, the same technology driving the need for more and better auditing can also enable teams to meet these demands.

In particular, “big data” allows auditors not only to do more of the work they have always done but to do it better and faster. Organizations—and their audit teams—now have access to a fount of information that would have been unthinkable a decade ago. Yet even though technology now enables us to view and analyze the full picture, a majority of internal audit teams continue to rely on methods like sampling. Whether this tendency is due to a lack of support or an unwillingness to change, it means that these internal audits are not maximizing their potential or delivering the value their organizations need.

In order to begin to address this gap, this paper introduces the benefits of data analytics and outlines some initial steps internal auditors can take to leverage current technologies and move toward a more data-driven approach to auditing. It argues that with the proper tools, support, and training, data analytics can be an effective way for organizations to expand their auditing capabilities while also freeing auditors from much of the burdensome task of gathering information. This in turn gives auditors more time for the work that adds the most value to their organizations, risk assessment and analysis.

WHAT IS DATA ANALYTICS AND WHY DOES IT MATTER NOW?

Data analytics (DA) is the process of inspecting, cleansing, transforming, and modeling data with the objective of highlighting meaningful information, suggesting conclusions, and supporting decision-making. This isn’t a new concept; in fact, it’s a central part of the traditional audit process. What is relatively new, however, is the growing trend toward more integrated and timely use of much more complete data from multiple sources, often held and processed by specialized software in IT systems, to help inform business decisions. That is, it’s the *amount* of information available for analysis that is changing the landscape of the auditing profession. Where traditional audit methods have focused on investigating anomalies in small samples of data, DA enables auditors to work with 100 percent of the assets within an organization. Even

better, with the aid of DA technology auditors can examine and draw conclusions from complete datasets faster and more efficiently than they could examine just a sample of that data in the traditional manual process.

For auditors, the main motive for using DA methods and technologies is to improve audit quality. More data is obviously better than less data, and DA gives auditors the ability to harness the power of all their organization's data to quickly see the patterns and connections in vast amounts of information in order to better identify risks. DA tools also enable auditors to easily filter, sort, slice, and highlight data, and to organize their findings graphically in a variety of bubble, bar, and pie charts to be presented to stakeholders. With training, auditors can learn to produce high-quality statistical projections and even generate audit programs and algorithms tailored to organization-specific risks. In short, DA helps auditors conduct more audits more frequently, with much more complete information and better targeting, all while *reducing* the amount of time they spend on data collection.

DA has been recommended for the auditing profession for many years, but progress toward its adoption has been slow. Mainstream use of DA has sometimes been hampered by a lack of efficient or affordable technology solutions, problems with data capture, and concerns about privacy. However, more recent advances in big data technology have lowered these barriers to entry. Indeed, the upsides of DA are so powerful that some auditors may have been reluctant to embrace these methods because they fear being replaced by them.[1] But ultimately DA tools

[1] PwC argues that automation will be more salvific than destructive when applied to internal audit functions:

> Given the significant productivity impact, RPA [Robotic Process Automation] is having in various business functions outside of risk management, PwC anticipates RPA will soon be a foundational tool for Internal Audit. While part of a longer time horizon, Internal Audit's routine use of rules-based intelligent automation decisioning is expected to evolve towards more use of artificial intelligence. As organizations

can't take auditors out of the equation—instead, they free them up to spend more time on their most important work: analyzing results, determining when further actions should be taken, and deciding what those actions should be. Auditors add value to their organizations by identifying risks and aiding in decision-making, not through data collection. As companies demand more from their internal audit teams, the more time those audit teams spend on providing insight, the better.

Besides, failing to understand and embrace the best technology available is more likely to ensure internal audit's irrelevance than prevent it. Indeed, as organizations cross the "technology inflection point," the need to put data-driven decisions at the heart of operations becomes increasingly dangerous to put off.[2] The most forward-thinking and successful companies are not merely applying analytics as an additive to existing procedures but are instead using DA to transform the very nature of internal auditing: expanding beyond sample-based testing to include analysis of entire populations of audit-relevant data and using intelligent analytics to deliver higher quality audit evidence and more relevant business insights.[3] The business case for embracing DA is strong. An IBM study not specific to the auditing profession

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> embrace intelligent automation in products and services, Internal Audit will need to be knowledgeable about these technologies well in advance of applying them within the department.

Adopting automation and other tools within Internal Audit also positively impacts talent. It will make Internal Audit a much more attractive profession in the future and can create differentiation for organizations when competing for scarce skill sets and technology savvy resources. By fully or partially automating mundane tasks workers can be redirected to more challenging and rewarding assignments. Auditors will have highly sought after skills and Internal Audit will be an exciting place to work as teams stay informed of the evolving technology landscape. Internal Audit will be collectively equipped to deliver more value to the organization and auditors will be seen as significant contributors, which bodes well for the profession. ("Moving at the Speed of Innovation: The Foundational Tools and Talents of Technology-Enabled Internal Audit," 2018 State of the Internal Audit Profession Study, PwC, accessed June 30, 2020, https://www.pwc.com/sg/en/publications/assets/state-of-the-internal-audit-2018.pdf, 16.)

[2] Ibid., 5.

[3] See "Revolution Not Evolution: Breaking Through Internal Audit Analytics' Arrested Development," PwC, January 2018, accessed June 30, 2020, https://www.pwc.com/us/en/risk-assurance/publications/assets/pwc-internal-audit-analytics-revolution-2018.pdf.

found that CIOs rank analytics as the number-one factor contributing to an organization's effectiveness and those organizations that embrace analytics are twice as likely to outperform their peers, with 33-percent more revenue growth and twelve times more profit growth.[4] PwC's 2018 State of the Internal Audit Profession Study ranked internal audit teams according to their level of technology adoption as Evolvers (those who are advanced in their technology adoption), Followers (those who are taking notice and following the Evolvers' technology adoption at a slower pace), and Observers (those who have basic or no technology use). The report found that Evolvers were far more likely to be seen as contributing significant value to their organizations—75 percent of Evolvers versus 54 percent of Followers and just 34 percent of Observers. Evolvers' foundation in technology, the study found, gave them "the capacity to expand their risk coverage without equally expanding their resources." In addition, they were seen as more innovative in technology, more collaborative, and better aligned with stakeholder expectations. "Those characteristics," PwC concluded, "increase their relevance to the organization and its innovation agenda."[5]

Yet in spite of these benefits—to both audit quality and organizational perception of internal audit's value—only 14 percent of internal audit functions are advanced in their technology adoption. PwC's report found that these few innovators are found not only in large organizations and regulated industries; rather, they span industries, company sizes, and geographies, suggesting that "the stereotypical technology barriers of budget and size can be overcome."[6] This gap between the extraordinary potential of technology-enabled internal audit and the small

[4] Cited in Christopher Mishler, "Data Analytics for Internal Auditors: Getting Started and Beyond," accessed June 30, 2020, https://chapters.theiia.org/detroit/DIIADocs/Data_Analytics_Getting_Started_and_Beyond_2-9%202016_Experis_Presentation.pdf, 12.
[5] "Moving at the Speed of Innovation, 6–7.
[6] Ibid., 6.

number of organizations embracing that potential—at a time when barriers to entry are particularly low—has created a remarkable opportunity for internal audit teams who are willing to take steps to incorporate DA now.

BENEFITS OF DA-ENABLED INTERNAL AUDIT

Applied to internal audit functions, data analytics can deliver enhanced transparency and granularity, better risk targeting, and higher-quality evidence, all with greater efficiency compared to traditional audits. Below are just a few specific benefits of DA-enabled auditing.

Complete datasets empower deeper, more accurate analysis. As auditors well know, sampling is a compromise: it's impossible to get a 100-percent accurate view of an organization through sampling, but samples are manageable for a group of human beings to collect and analyze. But with companies now producing petabytes of data, sampling is no longer sufficient for meaningful findings.

Data analytics make it possible to analyze the massive amounts of information companies produce today. Internal audit teams can process every point of data and even integrate external data sources for more comprehensive analysis. With the option to analyze entire datasets, organizations can discover every anomaly in their operations, not just those captured by a sample.

Increased understanding leads to better risk targeting and fraud detection. Through DA, it is possible to capture a complete, detailed picture of an organization so that auditors can see, prove, and target every risk area. The increased efficiency of DA-enabled audit leaves auditors more time to address more areas of risk in an audit cycle while reducing or eliminating sampling errors.

Furthermore, fraud detection can often be difficult to conduct within the traditional auditing model due to the large amounts of available data. DA allows numerous tests to be tailored based on the characteristics of each entity.

Automating data collection and processing leaves more time for analysis. It is likely humanly impossible for internal audit teams alone to tackle the amount of information provided by big data. DA makes the impossible possible by handing off the more mundane tasks of extracting and sorting data to machines. Not only does technology make it possible for humans to conquer much, much more information, but it also allows them to do it in less time than they would take to analyze much smaller amounts of information in the traditional audit model. With this increased efficiency and productivity, auditors will have more time to use their professional expertise and judgment on the things that add the most value to their organizations. With DA, auditors have the freedom to perform deeper analysis in a greater number of risk areas, or innovate and customize their audit through creative modeling and sourcing.

DA technology fosters better communication with stakeholders. DA enables more frequent testing at shorter intervals, leading to more timely and relevant audit reporting to stakeholders. DA software also enables more creative visual output such as dashboard displays and charts (rather than text or numerical information), allowing stakeholders to better understand the trends and patterns of the business.

With DA, internal auditors can better plan for the future, and can even help predict it. Data-driven auditing can do more than just analyze operations in context: they can use predictive analytics to anticipate the state of the organization in the future. Auditors can draw on

the company's archival data, available data from competitors, or publicly available information on industry trends and standards to predict and minimize future risks to the organization. With the ability to analyze complete datasets from a variety of sources, internal audit teams can provide their stakeholders not only with hindsight and insight but with foresight.

Technology-enabled auditing is compatible with remote work; traditional auditing is not. Work-from-home is here to stay. In a traditional auditing model, that means the ability to obtain, review, and discuss documents or conduct interviews has been limited substantially. The new technology-enabled mode of work demands a technology-enabled mode of audit. What if all of your organization's data was already in the cloud, ready to be analyzed from anywhere? Exploring new ways of collecting, organizing, and analyzing data is a natural part of the auditor's toolkit. Auditors are uniquely suited to lead the way forward in developing and implementing new best practices for the way we work now.

SOME INITIAL STEPS TOWARD DA-ENABLED AUDITING

Getting started with new technologies and methodologies can be overwhelming, especially in a profession as regulated as auditing. Despite its benefits, data-driven auditing can be restricted by the inaccessibility or poor quality of organizational data, access to technology, or lack of training and experience on the part of practitioners. To be sure, implementing DA-enabled auditing in any organization will require a ground-up initiative comprising cultural and infrastructural change. Here are a few steps to get you started.

1. **Ask for your organization's support in getting access to data.** Auditors can only make use of data that is available, accessible, centralized, and secure. As auditors are well aware, privacy and security concerns can be serious barriers to the auditing

process, and asking for *all the data* is certain to make some departments uncomfortable (regardless of the fact that centralizing data in a single system is likely to make it much more secure). For organizations without a centralized system for data storage, information is likely dispersed across departments in various formats. Efforts to bring that data together will require the full support of senior management, but they will pay dividends well beyond internal audit functions once they are realized. If your colleagues view this process as disruptive, let them know that once data analytics are brought into the audit workflow, their involvement in the audit process will be far more passive and painless.

2. **Research standards**[7] **and tools for ensuring data integrity.** Data-driven auditing can only be as good as its source data; good, usable data is essential. That means data that is accurate, high-quality, and compatibly formatted. All auditors know the pain of presenting evidence only to find out in the moment that the data is years old. Having accurate data that is up to date can be very difficult when collecting samples from a variety of sources dispersed all over your firm. A good data analytics tool will provide a uniform format for data input that can be updated and approved ad hoc. Expect to invest more time in this kind of "data wrangling" in the first year or two of implementing data analytics. Once a process is established and standardized, executing a far more complete audit will consume less time than sampling. Your analytics tool should also remind data owners to self-certify that existing data is accurate and organized on an annual or bi-annual basis.

[7] For some basic guidelines for standardizing audit data, see "Audit Data Standards—Base Standard," AICPA, July 2015, accessed July 1, 2020, https://www.aicpa.org/content/dam/aicpa/interestareas/frc/assuranceadvisoryservices/downloadabledocuments/auditdatastandards/auditdatastandards.base.july2015.pdf.

3. **Invest in training for auditors**. While auditors are generally thrilled with the prospect of not having to perform routine data collection, processing, and checking, they will need training in order to capitalize on the potential of DA. The value of a data-driven audit will only be realized when auditors are empowered to influence the scope and nature of the audit. This will require the development of new skills aimed at recognizing what questions to ask of the data, using analytics to produce audit evidence, and deriving meaningful business insights from big data. Auditors will need to be sufficiently conversant on the subject of programming to describe what analytics of a given asset aims to accomplish. They will also need critical thinking skills to use datasets creatively to improve the quality of the audit and glean useful decision-making information for the organization. Training in data mining, data analytics, communication skills, artificial intelligence, and machine learning may all be relevant to data-driven auditing.

CONCLUSION

As technological innovation introduces an ever-expanding array of risks and opportunities to our daily lives, auditors must be prepared not only to understand the risks but to embrace the opportunities. To effectively protect us from our technology, they must integrate it into their processes. Audit quality is not a product of the tools auditors use—big data, analytics software, automation—but rather of the analyses and judgments those tools facilitate. Data analytics provides a chance to reimagine the internal audit for a tomorrow that comes sooner every day.

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