



GLOBAL KNOWLEDGE BRIEF

# Data Analytics

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Part 3: Developing a Resilient Data Analytics Strategy



The Institute of  
**Internal Auditors**

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## About the Experts

### **Emmanuel Manalo, CIA, CPA**

Emmanuel is the Head of Internal Audit at Lemonade. His long career in internal audit started in public practice with PricewaterhouseCoopers - Philippines and Ernst & Young - Singapore. His pivot to data analytics strategy and execution allowed him to build internal audit analytics functions at Tyco International and Estee Lauder Companies. He also held internal audit leadership roles at Johnson Controls and Visa as Head of Internal Audit - Americas and Operational Audit, respectively.

### **Yusuf Moolla, CIA**

Yusuf has more than 20 years of data and assurance experience. He previously worked for Deloitte and KPMG in several countries, leading audits and data projects. Yusuf helps performance auditors and internal auditors confidently use data for more effective, better-quality audits. He works closely with clients — supporting them through data-focused consulting, advice, delivery, and coaching. Yusuf is a principal consultant with Risk Insights and co-author of *The Data-Confident Internal Auditor*.



# Introduction

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**Data analytics involves reviewing raw data to identify trends and anomalies** and to mine meaningful information from a large pool of data. “Data analytics” is not a technology program, but technology does enable more effective and efficient use of data analytics. Data analytics can be used in tandem with tools such as artificial intelligence (AI), machine learning and robotic process automation (RPA).

Types of analytics include:

- Descriptive analytics, which covers the details of past performance and may include year-over-year or month-over-month changes in sales, revenue, pricing, inventory, customers, or visitors, or other trends or changes that have already occurred.
- Diagnostic analytics, which examines the *factors behind a trend or result*.
- Predictive analytics, which uses predictive modeling to discern *what might happen in the future*.
- Prescriptive analytics, which *assesses potential outcomes and identifies the next best actions* based on analysis of existing data.

Due to a complicated global business and political environment, as well as stakeholder expectations, business leaders are increasingly focusing attention on the last two types of analytics above — predictive and prescriptive. Internal audit certainly already adds value by offering perspective and insights that can help organizations develop forward-looking strategies. An appropriate and resilient data strategy can support and augment that effort.

This Global Knowledge Brief examines how chief audit executives (CAEs) and their teams can craft data analytics strategies that:

- Enhance internal audit capabilities.
- Determine what technologies best suit their needs
- Enhance assurance on key areas of data protection, regulatory compliance, and effective overall data governance.



# Enhancing Capabilities

## Overcoming barriers

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### Managing you team's mindsets

**Data analytics and advanced data technologies can make significant changes** in the way that internal audit teams function. Their use can result in additional capacity for audits and enable and support higher-level work and analysis.

The mindset of the internal audit leaders and team members is one of the most important factors in successful implementation of data analytics and advanced technologies. Sticking to the way things have always been done or questioning the need for change can hinder any effort at transformation.

"If the whole audit team is resistant to new approaches or questions the value, it is very difficult to change," said Yusuf Moolla, principal consultant at Risk Insights and co-author of *The Data-Confident Internal Auditor*.

While training on new techniques and technologies is key, it may not have a meaningful impact or may not even occur if the organization is not open to setting aside current methods and trying new ones. Moolla said closed minds or failures of imagination can lead to team leaders or members not understanding "the worth of an additional evidence source."

One way to alter mindsets is to consider and communicate the benefits of data analytics and advanced technologies. A few worth noting include:

- They can enable internal audit to more easily find fraud, duplications, exceptions, conflicts of interest, and other risks, errors, or concerns throughout the system.
- They do the tedious, repetitive, manual tasks, providing team members with accurate reliable information. Practitioners can concentrate instead on a greater number of audits, more complex assignments, or higher-value advisory work. The result is higher productivity and more value to management and the board.
- Many newer professionals are excited about advanced tools such as automation and artificial intelligence and want to put them to work in their new careers. That can be a powerful recruiting advantage during a time of staff shortages.
- Data visualization can take complex and data-heavy topics and turn them into easily understandable graphics tailored to each audience's level of knowledge. (For more information, see the IIA Global Knowledge Brief, [Data Analytics Part 2: Gathering, Understanding, and Visualizing Data.](#))

In Moolla's mind, data visualization is "where internal audit, management and the audit committee meet," because it allows for better understanding among them. "It's critical that people at every level understand that data is a new form of evidence and a really effective way to communicate overall," he said. If it can add more value and the team has made a commitment to give the effort a chance, it's well worth trying."

It is true that newer team members with skills in data analytics techniques may be able to drive change. However, because there is often an unconscious bias toward hiring people who have characteristics or attitudes, professionals with knowledge and passion for digital transformation may not be chosen for the team, Moolla said.

Even if internal audit does attempt to hire these people, they may choose to work for more forward-looking organizations instead. Indeed, it is possible to spot problems in mindset by considering how long people with new ideas or capabilities



stick with the organization. If they don't last long, the organization's reluctance to embrace new ideas may be a contributing factor.

At the same time, it is true that even younger team members may have some discomfort in accepting advanced technologies. The pace of change is so rapid that those technologies may have moved well beyond even what recent grads studied in school only a few years earlier. Team members of any age may also not welcome advanced data technologies because they assume that this area is the province of an information technology or data science team. Internal audit leaders should be sensitive to these potential problems and reassure and educate their team members.

## Addressing other barriers

There are a number of additional hurdles that may make it difficult for internal audit to enhance its data analytics capabilities and capacity, noted Emmanuel Manalo, head of internal audit at insurance provider, Lemonade.

- **Lack of an organizational strategy on data.** Even if one exists, it may not take into account the specific needs of internal audit. If the strategies, structure, and framework are focused on business issues, such as customer transactions, for example, it will not lend itself well to internal audit uses.
- **Little or no understanding of data structures.** It's harder to appreciate or accept new approaches or technologies if their purpose, use, and value aren't clear. As part of their training, team members will have to understand data and why it is a priority.
- **Lack of the skills used in processing data.** For example, team members may need graphic design skills for dashboards or the ability to use intuitive machine learning analytics. Without them, internal audit teams may not be able to create the kinds of dashboards or visualizations that can highlight and communicate valuable findings. They also may not be able to manipulate the data to achieve useful insights. Not all team members need such skills, but the overall function should have such resources available to it. That may mean that internal audit may become the customer of other departments that have these skills, such as graphics or data science. However, a dedicated data team within internal audit is preferable — one in which data professionals are trained to audit, according to Manalo. These professionals can then share their knowledge and learn from existing internal audit team members.
- **Failure to collaborate.** The head of audit or the head of analytics within internal audit should have a good relationship with the chief data officer. Such relationships provide internal audit leaders with ongoing information and insights on overall organizational data strategy. Collaboration and visibility can also give internal audit a seat at the table when limited resources are distributed.



# Technology Determinations

## Data strategy, tools, and capabilities

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### Key questions to ponder

**In choosing an advanced technology there are several factors to consider:**

**What is the organization's overall data strategy?** It's important to determine what data framework the company is using, and if this is suitable for internal audit. Internal audit should be involved in or at least have reviewed the organizational data strategies to spot gaps, and then understand whether they need to be adapted to or address internal audit needs, according to Moolla.

**What separate data tools and approaches does internal audit need?** Internal audit should use as much of the organizational data governance framework, data strategies and technologies as feasible, while keeping in mind that this function may need to do some tweaking to meet its own unique requirements. As an example, internal audit adds value by analyzing and combining data from a range of different sources to provide perspective and insights that management and the board would not otherwise have. It may as a result need specific additional data safeguards.

It's important to consider, as well, whether internal audit has its own short-, medium-, and long-term data strategy. Compared to the overall organization, internal audit could have separate security and other requirements.

If internal audit is investing in its own data system, it is likely because the company does not already have one overall enterprise system. If one does exist, it's critical that internal audit's system can connect to multiple data sources and systems. Internal audit should be able to access the organization's overall data storage and to use organizational templates and styles to facilitate stakeholder use and for reporting.

**How is the team using current tools?** It's possible that existing software has capabilities that are not being put to full use. For teams making their first forays into data analytics, it may be best to begin with a small use case, perhaps for audits where a simple tool like Excel is already in use. The team can then build from there as its comfort with data analytics tools grows. Even if there are no underused systems, a system review can help the team consider what types of analyses the team might need now or in the future for more advanced use cases.

**What are the data capabilities of the internal audit team?** Pick tools that suit the team's current abilities. The team may only need a simple rules-based tool or it might be able to benefit from advanced data modeling capabilities. As the group grows in size and/or knowledge, it's possible to add data models and perform predictive analytics. If pricing is a consideration, keep in mind that it's relatively easy to get started with a basic program without having to pay a consultant for a complicated installation, Manalo noted.

**Will team members be coding?** While the ability to code is valuable, code-based tools are no longer necessarily the best solutions, according to Moolla. "No-code or low-code tech is now mainstream," he said. Most systems are quite extensible, or possible to modify, so they can be adapted for use beyond their initial need.

**When considering a tool, what basic data system needs does it address?** Moolla recommended that, at a minimum, tools should be able to handle cleansing, or the ability to weed out errors; analysis, to put the data to work; and visualization,



to explore and present results. It is not necessary that all capabilities exist in one piece of software; it's even possible to use a different software for each step.

**What type of vendor is best?** While new and up-and-coming vendors can be very innovative, don't overlook the benefits of working with an established vendor, Manalo said. One advantage is that they already have internal audit use cases that organizations can leverage. In addition, it can be easier to recruit new people or replace departing professionals and get them up to speed if the company is using a widely used system that more people are familiar with. Established vendors may be more likely to continuously improve their tools, as well.

**How do licensing fees work?** Manalo noted that some vendors charge a license fee when a user simply views a report. As a result, it's wise to determine in advance if there will be a fee every time members of management or the board view a dashboard.

As a general rule, the value of planning can't be overemphasized, Manalo noted. The most significant consideration during the process should be understanding which questions the audit team is trying to answer with data analytics and advanced technologies. When management understands those questions, and the potential value of the answers, it will be easier to engage them in the effort and to align with organizational goals and strategies without replicating information that is already available.

The validation process is also critical. Data analysis is a trial-and-error process. Adjustments to results may be needed if there are considerations or parameters that were not included in the initial results. Multiple validations can improve and enrich the analysis process.



# Comprehensive Approach

Protection, compliance, and effective governance

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## Accessing and managing the data

**Given the team's deep understanding of requirements in a wide range of areas**, internal audit should have a key role in the ongoing dialog on data protection, regulatory compliance, and overall data governance.

Addressing these considerations requires the right tools as well as people who are knowledgeable in each area. They are all so wide and multifaceted that it would be challenging to conduct proper oversight with manual data tools, Manalo said. Instead, systems and tools should be able to address key questions such as those on:

- Where specific data is located.
- What information is accessible to third parties.
- What risks data may be exposed to, such as unauthorized access or use.

Effective data use “is a very broad problem, and it needs to be solved in a very structured way,” Manalo said. That means that internal audit must be collaborating with the right gatekeepers and stakeholders. They include the chief information security officer, chief compliance officer, and the data privacy officer. Internal audit should work together with such stakeholders to address data policies and risks.

Deleting or purging data is also an important consideration. Given the large and expanding volume of data available, companies may struggle with how and when to cull data from their systems. They may inadvertently be making the mistake of keeping data longer than is prudent. In addition to managing and protecting the data the company needs, data tools can also seamlessly delete data based on policies set by the organization to minimize exposure and prevent an unnecessary build-up of stored but unneeded information.

Internal audit may need to drive this process, but it should not own it, Manalo said. Instead, internal audit should remain a key player in a team effort. The organization's overall risk management framework and policy set by the governing body will define its risk appetite and help identify which data needs protecting. Armed with a strong understanding of data analytics, internal audit can help organizations put analytics tools to work.



# Conclusion

**Data analytics combined with advanced data technologies are powerful tools** that can enhance every internal audit function. They are flexible enough to suit the different levels and the needs of a variety of organizations. Internal audit leaders should prepare and position their teams to leverage data analytics as parts of a robust data strategy. The advantages are so numerous and easy to illustrate that building a case for them with key stakeholders should be relatively straightforward.



## About The IIA

The Institute of Internal Auditors (IIA) is the internal audit profession's most widely recognized advocate, educator, and provider of standards, guidance, and certifications. Established in 1941, The IIA today serves more than 200,000 members from more than 170 countries and territories. The association's global headquarters is in Lake Mary, Fla., USA. For more information, visit [www.globaliia.org](http://www.globaliia.org).

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