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Data Analytics in Internal Audit

How leading Internal Audit departments combine data, tools, people, and process to drive value from data analytics

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Introduction

Modern internal audit departments are faced with an impossible task. Not only are they tasked with identifying, assessing, and monitoring the risks related to increasingly complex organizations and regulatory environments, they must do so with smaller budgets and fewer people. Internal audit departments are forced to adapt to rapid change in organization structure, business processes, and frequently do so with a global footprint –seeking to find a balance between a strict compliance function and a business advisor. It is no wonder that, faced with these complexities, many internal audit departments receive feedback from stakeholders that the audit process and findings did not add substantial value.

Data analytics is not a new answer to this need for increased quality and efficiency in internal audit. Speaking to any veteran auditor will yield stories of performing analytics on mainframe computers to catch check fraud in the 1980s, or using Computer Assisted Auditing Techniques (CAAT) to perform stratified sampling of journal entries in the 1990s. Although the basic concepts of data analytics in internal audit have remained the same, however, the practices of leading internal audit departments have been forced to evolve rapidly to keep pace with their organization's evolution.

Specifically, leading internal audit departments have adopted frameworks that address the four elements of successful data analytics:

1. Data

2. Tools

3. People

4. Process

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These four elements are combined to offer increased quality and efficiency, including:

- Integrating analytics of financial and operational systems during risk assessments, annual audit planning, and audit scoping to identify high risk business processes and locations;

- Implementing pre-incident forensic analysis routines that can be used to assess "what could go wrong," detect fraud during audit fieldwork and, in leading organizations, as the basis of a continuous auditing/ continuous monitoring (CA/CM) program;

- Leveraging multiple years of data, statistical analysis of time series data, and modern visualization tools to disaggregate large volumes of data and identify anomalies in transaction-based business processes such as Procurement; and

- Combining CAAT procedures, modern tools, and advanced analytics techniques including natural language processing and cognitive services to gain substantially increased coverage of high risk areas .

These efforts can dramatically increase the audit quality and efficiency, allowing internal audit departments to cover significantly more risks with fewer resources.

While analytics will never replace the judgment and experience of a veteran internal auditor, it can be crucial in enabling them to perform detailed procedures over complete populations and in-depth, complex assessments.

Data, Tools, People, and Process

Several elements are required for the successful integration of data analytics throughout the internal audit methodology: data, tools, people, and process.

1 Data

The availability of complete and accurate data sets enables detailed analysis of in-scope business processes. Once identified and standardized, especially across locations and subsidiaries, these analytics procedures can be run on-demand and in real-time to proactively identify issues or validate that issues have not recurred.

Example

A Japan-headquartered automotive part manufacturer with global operations leverages multiple years of labor costing data in their ERP system to enable analytics during the risk assessment process (e.g. identifying subsidiaries that have the highest amount of overtime, an opportunity for process improvement and possible fraud indicator).

Leading practice internal audit departments frequently start with one business process such as Procurement and work closely with their IT organizations to understand the data that is available. Due to business needs for insights into these business processes, there are often existing data warehouses, business intelligence tools, or other existing reporting mechanisms that can be leveraged to provide data to internal audit on an ongoing basis.

However, if the data is not currently available, or if IT is not comfortable providing direct access to production systems, an internal audit "data mart" can be created to enable analytics and CA/CM. Additionally, leading practice internal audit departments standardize and enforce data quality routines that identify missing data and inaccurate values to identify potential issues before they impact audit results.

Many challenges can be encountered with incomplete or inaccurate data. Organizations face issues with physical forms and other data that is not machine-readable. Additionally, data from third parties, such as vendors or support services, may not be available on a frequent basis. Technologies such as Optical Character Recognition (OCR) and natural language processing are potential solutions to these issues, including enabling the rapid and accurate scanning of paper documents such as contracts or approval forms. However, they require careful planning and evaluation before adoption.

2 Tools

The technology landscape for data analytics in internal audit has expanded rapidly as new categories of tools, such as self-service analytics and visualization tools, have entered the market. While the features of these tools have expanded and become more accessible for non-technical users, the cost has also dropped dramatically. Frequently, this combination allows experienced auditors to create basic analytics with little effort or IT support. The availability of free, "open source" libraries for advanced, predictive data analytics also enables moderately technical users to leverage techniques that would have previously been prohibitively expensive.

Leading practice internal audit departments combine the capabilities of multiple tools to take an agile approach to data analytics.

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Example

A US-based industrial manufacturer used a self-service visualization tool to import populations of vendors, purchase orders, and invoices to help auditors quickly understand underlying relationships, strata, and anomalies. Based on their understanding of the data, a modern data analytics tool was used to create audit procedures with drag-and-drop workflows, enabling basic analytics such as three-way matching and duplicate payment detection that were combined into a comprehensive audit program that significantly reduced risk.

Once basic procedures have been created, leading internal audit departments seek to turn these new assets into increased value through increased depth and scale. For example, if basic pre-incident forensic analytics procedures indicate that fraud may be an issue, the department will deploy more advanced tools such as training predictive modeling based on external data (e.g. bank records) to increase depth. Because these processes are repeatable and sustainable, they can frequently be transitioned into near-real-time continuous auditing tools. Areas where there is significant overlap with management's activities, such as auditing travel & entertainment expenses, can also be transitioned in to a continuous monitoring process.

Picking the right set of tools can be challenging given the variety of tools available in the market. Each tool should be assessed by many requirements, including:

- Ease of use, training, and available support
- Library of procedures for common business processes
- Cost, including ongoing maintenance or annual costs; and
- Alignment and integration with existing IT infrastructure (e.g. ERP)

3 People

Although self-service data analytics tools have reduced the difficulty in performing analysis, many traditional internal auditors still struggle with using data analytics to take a risk-based approach to auditing. Data analytics requires a significant amount of critical thinking and understanding of data; faced with a new business process, auditors must not only be able to quickly understand a new business process, but they must identify risks that can be quantified and create analytics-enabled procedures to address those risks.

Leading practice internal audit departments take different approaches to building a data analytics team based on their organizational structure, goals, and long-term strategy. While some departments choose to hire net new employees and create a data analytics in internal audit center of excellence, it is much more common to have one or two data analytics specialists in an internal audit department – frequently IT auditors that have been cross-trained on analytics tools and techniques.

Internal audit departments that are starting their data analytics journey may find it difficult to balance their short-term and long-term personnel requirements. Reliance on third parties – including IT resources from another department; a tool or consulting vendor; or temporary workers – is a common way to address initial, part-time, or incremental needs. This can enable greater flexibility while showcasing the initial value of data analytics and provide support for making long-term decisions, including hiring goals and tool selection.

Data, Tools, People, and Process

4 Process

The integration of CAAT procedures in audit programs of common business processes is a traditional first step in leveraging the power of data analytics to bring better insights and increase the efficiency of an audit. However, many organizations struggle with scaling data analytics using these analytics procedures without a comprehensive, end-to-end process for applying data analytics throughout the internal audit methodology. For example, the existing processes must be extended to answer questions such as:

- What information should I provide to IT in order to get the right data?

- Where are scripts stored and documented so that other team members can leverage them?

- What process will be used to validate data quality?

- How are data analytics integrated throughout the internal audit methodology, including risk assessment; annual audit planning; audit project planning, scoping, fieldwork, and reporting; issue follow-up; and other related activities?

Leading practice internal audit departments have modified their processes to embed data analytics considerations into every part of the internal audit methodology. Typically, special consideration is given to data analytics at the beginning of any activity. Thinking of "data first" provides adequate time to identify data assets, request access, and gather an understanding prior to using them in the audit process. Many internal audit departments also meet regularly with IT to understand upcoming changes to systems or configurations – as a continual consumer of this data, it is important that internal audit understand whether any changes will impact their ongoing analytics efforts, especially for CA/CM.

Getting Started

Balancing the requirements of data, tools, people, and process can be a difficult task. However, there are several small steps that can showcase the immediate value of higher quality and efficiency through the use of data analytics in internal audit. These include:

- Selecting and completing a data analytics-enabled audit pilot project with high value and low complexity. Many organizations select a portion of the Procurement process because the data is typically centralized and the analytics, such as detection of duplicate payments, can result in a tangible, positive return.

- Leveraging free visualization tools to create interactive dashboards that can be used during multiple phases of the internal audit methodology, including audit planning, scoping, fieldwork, and reporting. For example, a dashboard for a Procurement process can be used to select the highest risk areas during scoping, enable sampling and drill-down analysis during fieldwork, and communicate value-added insights to stakeholders during reporting and issue follow-up.

- Understanding existing analytics, visualization, or reporting available within the organization. Using tools and reports already provided to management is a low cost, quick way to perform analytics without a large investment in new tools.

Conclusion

Internal audit departments are faced with a difficult task: providing increased value and efficiency in an operating environment that is constantly being disrupted by new operating models and organizational changes.

Leveraging data analytics can provide immediate value – offering unique, value-added insights throughout the audit process while simultaneously enabling auditors to cover more locations, more transactions, and more risks.

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