Data Analytics Is a Must-Have Technology for Internal Auditors

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Analyst(s): Khushbu Pratap

Chief audit executives and internal audit leaders need to use data analytics for fraud detection and gaining risk foresight to help businesses make better decisions.

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Impacts

- The increase in fraud is pressuring internal audit teams to improve early detection of weakening controls.
- The demand for greater, faster and more accurate insights into business processes is forcing internal audit teams to adopt technology beyond the automation of administrative audit processes.

Recommendations

- Adopt data analytics technology to sharpen the audit focus on critical activities.
- Use data analytics software to identify weakening controls and enable early detection of control weaknesses or breakdown.
- Use the data extraction features of data analysis software to obtain datasets from disparate databases, file stores and applications with minimal IT assistance.
- Train internal audit teams in the use of data analysis technologies and software for general and special audit projects.

Strategic Planning Assumption

By 2015, the number of internal audit teams that use data analysis technology for identifying emerging risks will double to 20%.

Analysis

Data analytics in the audit profession (also called audit analytics) is the process of extracting audit data from heterogeneous sources, processing the data on predefined conditions and parameters, and identifying patterns in independent and integrated datasets that would be impossible to obtain otherwise (see Note 1). Table 1 illustrates the basic use of data analytics software.

Table 1. Examples of Basic Analytic Logic Used in Data Analytics Software for Auditing

Analytic Logic	Example
Transaction Range and Limits	Apply a rule to identify procurement exceptions above $10,000.
Nature of Data	Identify fraudulent records where the approved supplier address is blank.
File Matching	Identify and match values in contract, invoice, payment receipt and tax files.
Duplicate Transactions	Identify duplicate entries of approved suppliers with the same office address and different names.
See Note 2.	

Source: Gartner (September 2012)

Use of data analytics in internal auditing can help auditors save time and effort in completing routine audits, and also sharpen their focus on high-risk areas that need special attention. Overall, the benefits of adopting a data analysis technology or software include:

- Improved efficiency of internal audit process through the use of data analytics in the audit planning phase, thus enabling appropriate prioritization of audit areas
- Greater insight into the audit data through pattern matching and identifying relationships between heterogeneous audit datasets
- Increased scope of audit coverage within the time allocated for audit projects

There are basic and advanced data analysis techniques. Most internal audit teams use the basic techniques in data analysis software to save time and auditor effort otherwise used in manual audits (see the examples in Table 1). Few internal audit teams have matured to the advanced methods of predictive analytics, such as regression analysis and machine learning, to bring higher levels of efficiency and effectiveness to the role of internal audit. The advanced methods require significant effort in analysis project requirements scoping and external consulting help, which adds audit costs,

and they are seen in highly regulated business environments, such as banking and financial services, and insurance (see Note 3).

Increases in fraud, growth in organization data, increases in regulations, and the increasing need to provide better insight into the risks and controls are driving internal audit teams to make data analytics a must-have technology (see Figure 1).

Figure 1. Impacts and Top Recommendations for Internal Auditors to Adopt Data Analytics

Impacts	Top Recommendations
The increase in fraud is pressuring internal audit teams to improve early detection of weakening controls.	• Adopt data analytics technology to sharpen the audit focus on critical activities. • Use data analytics software to identify weakening controls and enable early detection of control weaknesses or breakdown.
The demand for greater, faster and more-accurate business process insight is forcing internal audit teams to adopt technology beyond the automation of administrative audit processes.	• Use the data extraction features of data analysis software to obtain datasets from disparate databases, file stores and applications, with minimal IT assistance. • Train internal audit teams in the use of data analysis technologies and software for general and special audit projects.

Source: Gartner (September 2012)

Impacts and Recommendations

The increase in fraud is pressuring internal audit teams to improve early detection of weakening controls

The "Global Fraud Report 2011-2012" from the Economist Intelligence Unit showed that there was a 55% increase since last year in the number of fraud cases committed by insiders, currently at 60% of the total fraud cases reported. It also showed that 36% of the worst hit businesses reported weakening of controls as the leading cause of fraud.[1]

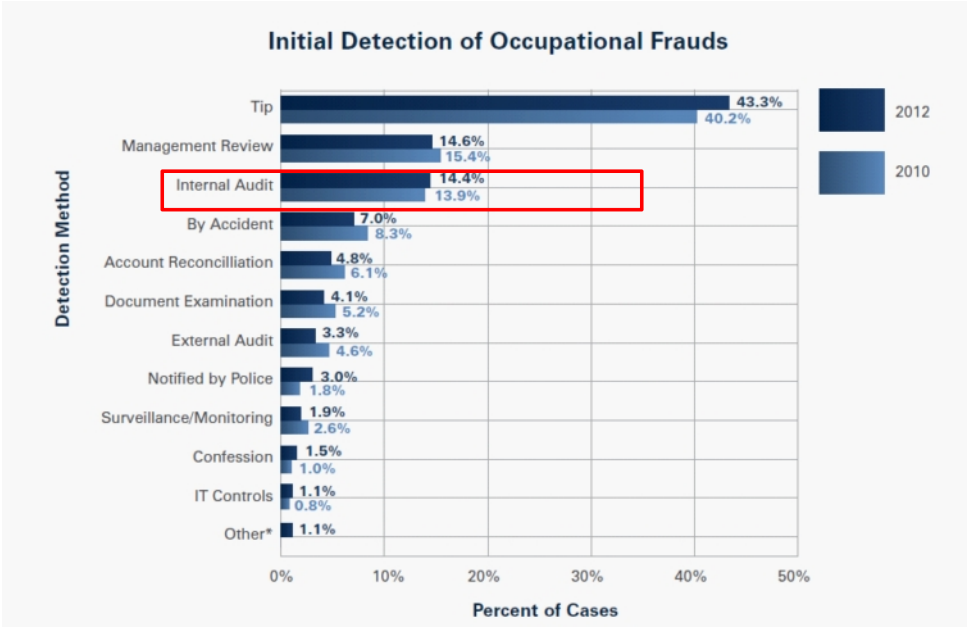
Fraud affects big and small businesses — the Association of Certified Fraud Examiners reported in its "2012 Report to the Nations on Occupational Fraud and Abuse":

> The typical organization loses 5% of its revenue to fraud each year. When applied to the estimated 2011 gross world product,

this figure translates to a projected global fraud loss of more than $3.5 trillion.[2]

Figure 2 illustrates the minuscule change in effectiveness of internal audit teams to detect fraud.

Figure 2. Change in Effectiveness of Internal Audit Teams to Detect Occupational Fraud



See Note 4.

Source: "Report to the Nations on Occupational Fraud and Abuse 2012," Association of Certified Fraud Examiners

Internal auditors are lagging in the optimum use of data analytics to effectively test controls, prevent fraud and provide insight into emerging risks.[3]

Recommendations:

- Use data analytics technology to improve internal audit functions (see Notes 5 and 6).
- Adopt data analytics technology to sharpen the audit focus on critical activities. The automation of audit data analysis and the inclusion of appropriate datasets can provide early signs of control weaknesses.
- Implement a data analytics program for the audit team. Identify the objectives of a data analytics program for use in internal audit planning and scoping. Internal audit teams that use data analytics to plan and scope the audits have been able to focus audit efforts on appropriate audit entities. This helps prioritize auditing in line with stakeholder concerns, critical risks and audit objectives and, at the same time, ensure adequate coverage of the audit scope.

- Design customized rule sets to gain the insight based on the objectives of the audit project and the data analysis program. Every organization has unique datasets and different priorities. Internal audit teams should put effort into designing and updating the rule sets in order to gain useful insights from the audit data. Such useful insights can include the discovery of illegal transactions, human errors or the misuse of privileges.
- Leverage data analytics across audit initiatives for greater understanding of the risks across processes. For example, when auditing card payment systems, analyze data from suppliers' books of accounts, point-of-sale receipts, and specific commodity or service sales. This is done to gain insight into a possible ploy of the supplier to commit charges for commodity X (where commission on card payments is applicable) as accounted to or charged under commodity Y (where commission on card payments is not applicable).
- Graduate from ad hoc audit data analysis to repeated, continuous analysis for assurance on critical and risk-sensitive activities. The continuous analysis is typically automated with continuous controls monitoring (CCM) solutions. CCM initiatives are mandated and monitored by senior management. However, internal auditors introduce continued analysis of controls in the enterprise. Data analysis carried out by the audit teams before and during periodic audits helps to provide assurance on the performance of the selected controls only for a specific duration sampled in the audit. This is termed as "ad hoc analysis." The data analysis carried out on a continued basis over a period of time (not only for audits) is termed "continued analysis."

The demand for greater, faster and more accurate insights into business processes is forcing internal audit teams to adopt technology beyond the automation of administrative audit processes

Advances in technology have always posed challenges to internal auditors to adapt to the needs of the business. Most internal auditors have brought efficiencies into the overall auditing management processes by automating the administrative parts, such as scheduling, work papers and reporting. However, with businesses' need to gain greater, faster and more accurate insights into controls, and sometimes the lack of resources to adequately test a large array of controls are forcing internal audit teams to use technology to automate the controls testing process.

Recommendations:

Use of data analytics software for:

- Faster insights (less time spent with IT teams): Use the data extraction features of data analysis software that enables the sourcing of datasets from disparate databases (such as databases associated with financial applications, Web applications, identity and access management solutions, and ERP applications), file stores and applications with minimal IT assistance.
- Greater and more accurate insights: Use the predefined rule sets available in the data analysis software to begin the automation of controls testing. Customize the rule sets, and create new rules when there is a change in the nature of the data and the type of tests that need to be run.

- Map the key risk indicators and key performance indicators of business processes, in addition to the known parameters of controls tested in a business process (see "Map Key Risk Indicators to Key Performance Indicators to Support IT and Enterprise Risk Management").
- Train internal audit teams in the use of data analysis technologies and software for general and special audit projects.

Data analytics vendors for audit: ACL Services, CaseWare, and Monarch Report Analytics from Datawatch

CCM vendors: ACL Services, CaseWare RCM's CaseWare Monitor (formerly SymSure Monitor), Greenlight Technologies, Infogix; Infor-Lawson, Oracle, Oversight Systems, Runbook International, SAP, Security Weaver and SymSoft

Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Four Keys to Effective Compliance Controls Assessment"

"Hype Cycle for Governance, Risk and Compliance Technologies, 2012"

"Developing Key Risk Indicators: Developing Causal Chains to Link Risk to Business Outcomes"

"How to Organize for Fraud Management"

Evidence

[1] "Global Fraud Report 2011-2012" from the Economist Intelligence Unit

Kroll commissioned the Economist Intelligence Unit to conduct a worldwide survey on fraud and its effect on business during 2011. More than 1,200 senior executives worldwide from a broad range of industries and functions were polled in June through July 2011. Twenty-three percent were based in North America, 24% in Europe, 28% in Asia/Pacific, 15% in the Middle East and Africa, and 11% from Latin America.

[2] Association of Certified Fraud Examiners (ACFE) Report to Nations on Occupational Fraud and Abuse 2012

The ACFE's "2012 Report to the Nations on Occupational Fraud and Abuse" is based on data compiled from a study of 1,388 cases of occupational fraud that occurred worldwide from January 2010 through December 2011. All information is provided by the Certified Fraud Examiners (CFEs) who investigated those cases. The fraud cases in the study came from 94 nations.

[3] Internal Auditors Are Lagging in the Use of Data Analytics

As quoted in Protiviti's 2012 internal audit and capability survey, "In 28% of organizations, technology is used in control testing processes less than 10% of the time or not at all. Only one in three organizations conducts internal audits in which technology is used in the control testing process more than half of the time." Also, "60% of organizations do not leverage data analysis or technology-enabled audits to help prevent fraud."

Note 1 Data Analytics in the Audit Profession

As of this writing, the use and scope of data analytics in internal audit departments are primarily limited to the application of basic analytics logic (as illustrated in Table 1). Few internal audit teams are using advanced data analytics in the form of predictive analytics.

Note 2 Examples of Basic Analytic Logic Used in Data Analytics Software for Auditing

The examples are only representative of the analytic logic used in data analytics software by audit teams.

Note 3 Advanced Data Analysis Methods Require External Consulting Help

This is observed in most cases among internal audit teams. Some internal audit teams with auditors qualified and trained in advanced data analysis methods may not require external consulting help.

Note 4 Occupational Fraud

Occupational fraud is defined in the Association of Certified Fraud Examiners' "Report to the Nations on Occupational Fraud and Abuse 2012" as "The use of one's occupation for personal enrichment through the deliberate misuse or misapplication of the employing organization's resources or assets."

Note 5 Effective Use of Internal Audit Functions

The Grant Thornton Chief Executive Audit Survey 2011 identifies that CAEs who are using data analytics have achieved more efficient internal audit processes (76%); quicker pattern, trend and relationship identification (71%); and increased internal audit coverage (61%).

Note 6 Use of Data Analytics Technology to Help Early Detection of Fraud

Data analytics is one of the ways to detect fraud early. Other methods used by internal auditors are out of the scope of this research.

GARTNER HEADQUARTERS

Corporate Headquarters
56 Top Gallant Road
Stamford, CT 06902-7700
USA
+1 203 964 0096

Regional Headquarters
AUSTRALIA
BRAZIL
JAPAN
UNITED KINGDOM

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