

DATA ANALYTICS

THE KEY TO RISK-BASED AUDITING



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Introduction

To ensure organisations achieve their objectives, it is imperative that internal audit reviews the controls in place to reduce the risks their companies face. In order to distinguish this process from ‘traditional’ internal auditing, the term ‘risk-based internal auditing’ was coined.

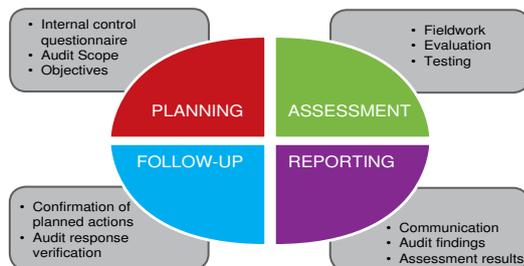
Risk-based internal auditing begins by first assessing an organisation’s objectives and providing an opinion

as to whether internal controls are reducing the inherent risks to acceptable levels. Based on the opinions formed, it is then determined if those objectives will be achieved. In contrast, traditional internal audit is limited to considering the controls over financial, fraud and possibly IT risks as well. Today, risk-based auditing is the standard expected for internal auditing.

According to the Chartered Institute of Internal Auditors, risk-based internal auditing allows the internal audit to conclude that:

- Management has identified, assessed and responded to risks above and below the risk appetite.
- Responses to risks are effective but not excessive in managing inherent risks within the risk appetite.
- Action is being taken to correct situations where residual risks are not in line with the risk appetite.
- Risk management processes, including the effectiveness of responses and the completion of actions, are being monitored by management to ensure they continue to operate effectively.
- Risks, responses and actions are being properly classified and reported.

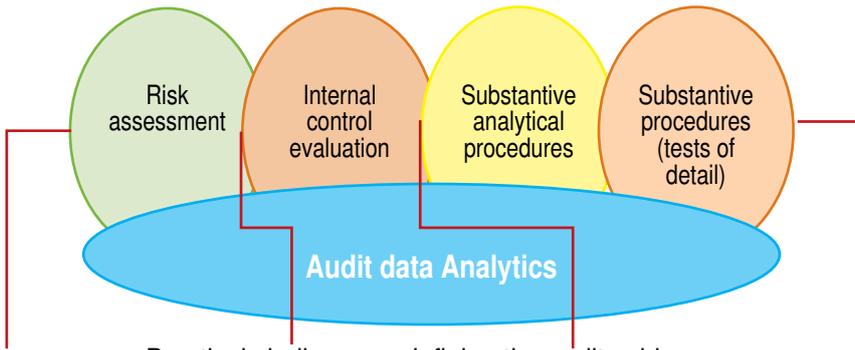
Internal Audit



- Traditionally, internal audit (AI) functions focused on providing core assurance around business process risk and controls.
- But with increasing market volatility and complexity, AI is being tasked to deliver insight and value beyond assurance, particularly in the area of strategy execution, emerging risk and rising use of data analytics.
- Data analytics tools play a vital role in risk assessment and derivation of deeper insights into the organisation.

In this article, we will look at how auditors can assess, respond to and analyse the risks they encounter during a risk-based audit.

Audit procedures to obtain audit evidence



Practical challenges - defining the audit evidence

Can data analytics support a conclusion that a population does not present a risk of material misstatement and therefore substantive evidence is not needed? Will the standards need to change?	<ul style="list-style-type: none"> • What can data analytics tell us about the operating effectiveness of internal controls? • Can data analytics eliminate the need for assessing the design of controls in a non-integrated audit? 	<ul style="list-style-type: none"> • Can data analytics be used as a new type of substantive analytical procedures? • Should data analytics be incorporated into the analytical procedures standards? 	<ul style="list-style-type: none"> • Can data analytics eliminate the need for audit detail testing if "outliers" are not identified? • How much testing is needed for unanticipated "outliers"?
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Use of data analytics on large sets of audit relevant data is much broader than traditional analytical procedures

to support the responses to the inquiries and analytical procedures. Data analysis can be used to analyse information for comparison with industry data that might be publicly available.

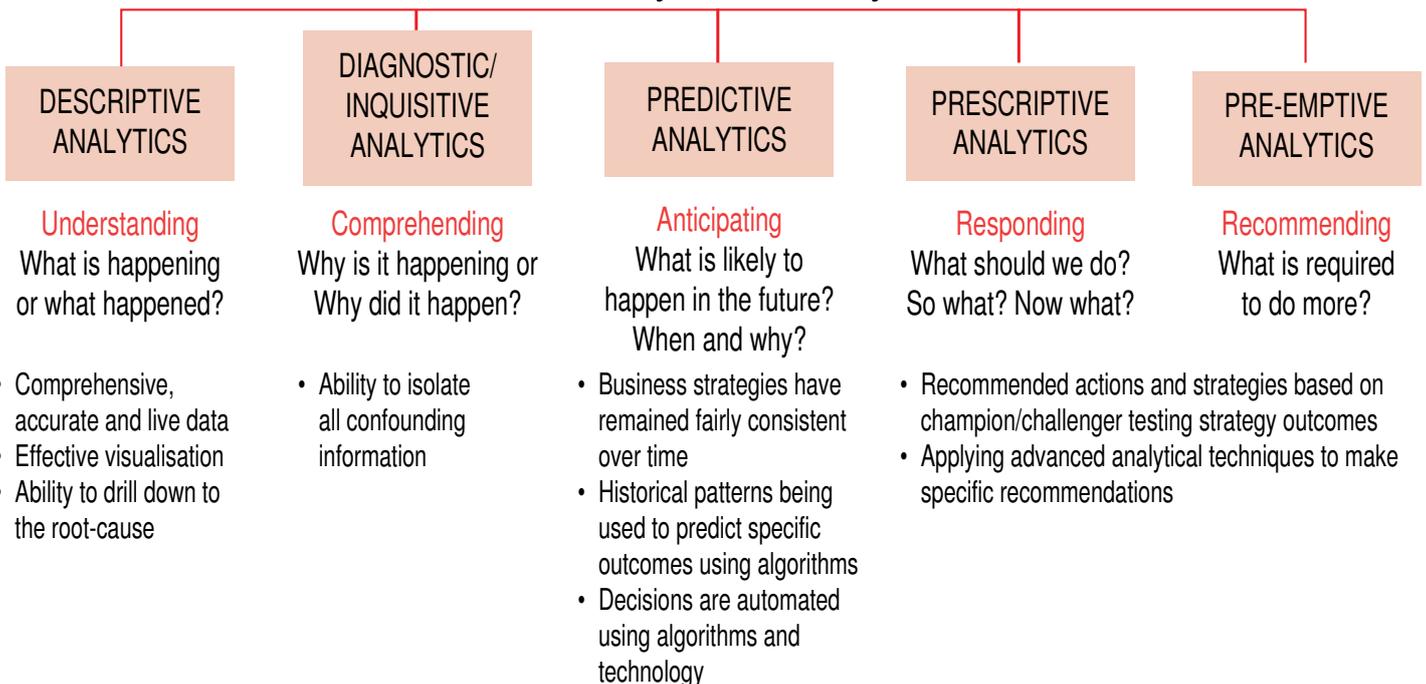
In cases where a client has multiple product lines, it might be necessary to obtain sales and cost details by product line for better comparisons or to explain variations from public domain benchmarks. Inquiries of management about the accounting system, initiation and recording of the various kinds of transactions, and areas where estimates are required, are necessary procedures.

Assessing Risk

Current standards require auditors to gain a thorough understanding of the organisation's industry and environment, including its internal controls. The risk assessment procedures required include inquiries of management and others, observations and inspections

Since the trial balance is the normal source for financial statement preparation, the auditor should obtain a year-to-date general ledger detailed report and perform forensic-type analysis to gain an understanding of transaction flows. With data analysis software and an

Answers by data analytics



electronic version of the report, these types of procedures are powerful and provide substantial information in helping to understand the client's financial environment.

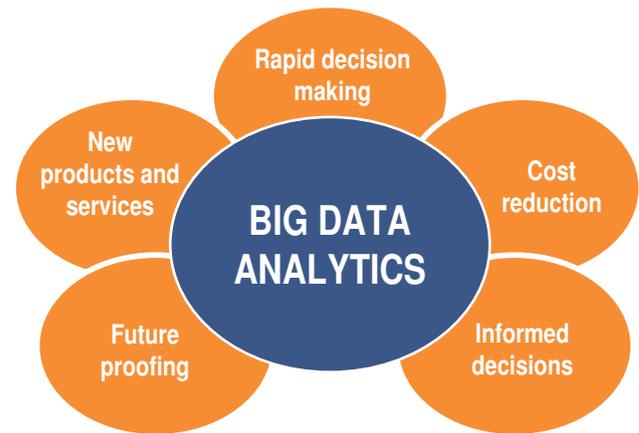
For example, all transactions for the period can be summarised by account and by journal source. A quick review of the results can tell the auditor such things as:

- What types of entries exist?
- Whether there are a high number of manual journal entries and what accounts are most often affected.
- Volume of activity in loan accounts.
- Whether excessive credits that are not from an accounts receivable posting source are included in accounts receivable.
- Whether excessive debts that are not from an accounts receivable posting source are included in revenues.
- Whether the ledger balances are accurate and how many transactions are included in each account.

With this detailed analysis, auditors can identify significant recorded activities that might represent risks, ask more specific questions, and gain an understanding of the environment. Comparing this type of summarisation with a similar summary from the prior year will help the auditor know more about changes during the year and be able to narrow the scope of items to consider for the current year.

It has been said that an audit both begins and ends with materiality—the threshold amount an auditor begins with in deciding what scope to set in performing the risk assessment and further audit procedures. A tolerable misstatement is the amount an account balance can be off without causing a material misstatement in the financial statements. While no specific formula is provided in the most recent auditing standards, amounts must be set while planning the audit. They must be based on the auditor's quantitative and qualitative judgment and take into consideration the users of the financial statements. Appropriate reasoning must be documented in the work papers.

Because data analysis software has no limit in how much data can be imported for review, stratifications or data population profiles can help identify individually significant items and groups of items that are also significant. They can also provide documentation to support the basis of the auditor's judgment when planning the audit strategy.

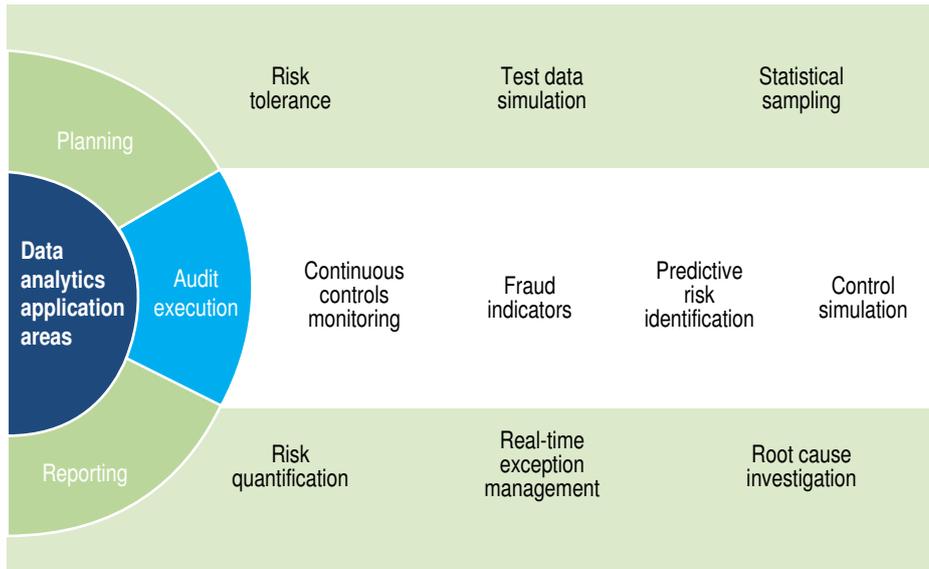


Fraud Risk Assessments – SAS 99 or ISA 240

Throughout the planning process, the risk assessment includes considering risks that fraud may have occurred. The auditing standard for fraud risk assessment requires auditors to ask what can go wrong and how could management intentionally cause a material misstatement in each significant area of the financial statements.

Fraud risk factors outlined in the standards are related to the fraud “triangle” of pressures or incentives, opportunities and rationalisations. In addition to the inquiries required, the auditor must perform specific analyses to help identify potential fraud or respond to all identified risk factors. The procedures listed below are taken from the applicable audit standards. Data analysis software is a critical tool for effectively performing these procedures;

- An analysis of unusual or unexpected relationships identified in earlier analytical procedures.
- A disaggregated analysis of revenue (by month or quarter, by product line, and so on).
- A disaggregated analysis of expenses/ expenditures and payroll.
- Identification and testing of journal entries made at the end of reporting periods and other unusual entries.
- Identification of accounting estimates for review; analyse underlying details.
- Performing cut-off procedures at period end.
- Comparison of inventory quantities for the current period with prior periods by class or category of inventory, location or other criteria, or comparison of quantities counted with perpetual records.



Materiality is an important concept for financial statement and other audits because the cost of examining 100% of a population would be prohibitive for clients. Some forms of sampling, such as monetary unit sampling, make use of materiality by requiring the use of tolerable and expected errors as parameters while planning the sampling application.

With large populations, data extraction is the only efficient way to make sure all individually significant items are identified.

- viii) Computer-assisted audit techniques (CAATs) to further test the compilation of the physical inventory counts.
- ix) A computerised match of the vendor list with a list of employees to identify matches of addresses or phone numbers.
- x) A computerised search of payroll records to identify duplicate addresses, employee identification or taxing authority numbers or bank accounts.
- xi) An analysis of sales discounts and returns for unusual patterns or trends.
- xii) A review of large and unusual expenses (requires data extraction).

Responding to Risk Assessments: Audit Approach

Audit Risk or the risk of material misstatement (RMM) is often viewed as a formula:

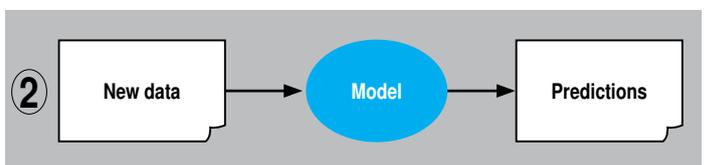
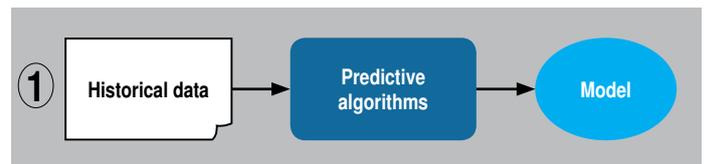
$$RMM = \text{Inherent Risk (IR)} \times \text{Control Risk (CR)}$$

$$AR = RMM \times \text{Detection Risk (DR)}$$

The standards require that auditors link their audit procedures—the nature, timing and extent of tests they perform to the RMM. If IR and CR are low (controls must be tested to achieve a low risk), the risk assessment procedures performed to make that determination might be sufficient to lower the auditor’s risk. If they are not, or if any fraud risk factors are identified, the auditor must respond with a plan to perform additional procedures, and they should be customised to the client.

Data analysis is most suited to testing assertions of accuracy and a cutoff. While it would be impossible to “find” something that is not in a database while testing for completion, the auditor can check date statistics to determine that every month is represented in the population. A test for cutoff of transactions would involve looking at subsequent payments to determine that they were recorded in the correct period.

Audit program steps should reflect the auditor’s risk assessment, noting how the tests (further audit procedures) will be used to lower the risk of material misstatement, and these must be defined by the relevant assertion for the account balance. In the previous example, the valuation assertion is affected by a high risk of an overstatement for net accounts receivable (or understatement of the allowance for bad debts), because of the high percentage of past due accounts. Since the work that would be done to audit the allowance account includes subsequent collections, the evidence is also obtained for those accounts regarding existence. The audit evidence about existence that would come



from the confirmations could be reduced in this case by segregating the population.

Since less experienced staff will normally perform the tests of details (further audit procedures) or other substantive tests in response to RMM, it is important that the audit program clearly defines not only the tests to be performed, but also the process for obtaining the data, importing it into the data analysis software, and the output that will become part of the work papers. Some firms have adopted a policy of using IT specialists to acquire, import and analyse the data during an audit; however, this practice handicaps field auditors who must see the results of the test and decide what to do next. With data analysis software, simply drilling down on a questionable summarised amount can provide the evidence needed to clear or isolate the exception.

Analytical procedures

Analytical procedures include everything from simple financial statement balance and ratio comparisons to complex correlations, time series and trend analyses; however, they also include visually scanning records to identify large and unusual items. In each case, the objective is to set an expectation, then perform the test or other procedure and compare the results to the initial expectation. Audit evidence consists of the documentation of that process, together with the auditor’s conclusion about the account balance or set of transactions after explaining and corroborating the reasons for variances.

Scanning the general ledger or subsidiary accounts looking for unusual items is highly effective with

data analysis software, which provides the ability to summarise the details then drill down to further investigate anything that raises concerns or questions about errors that might exist.

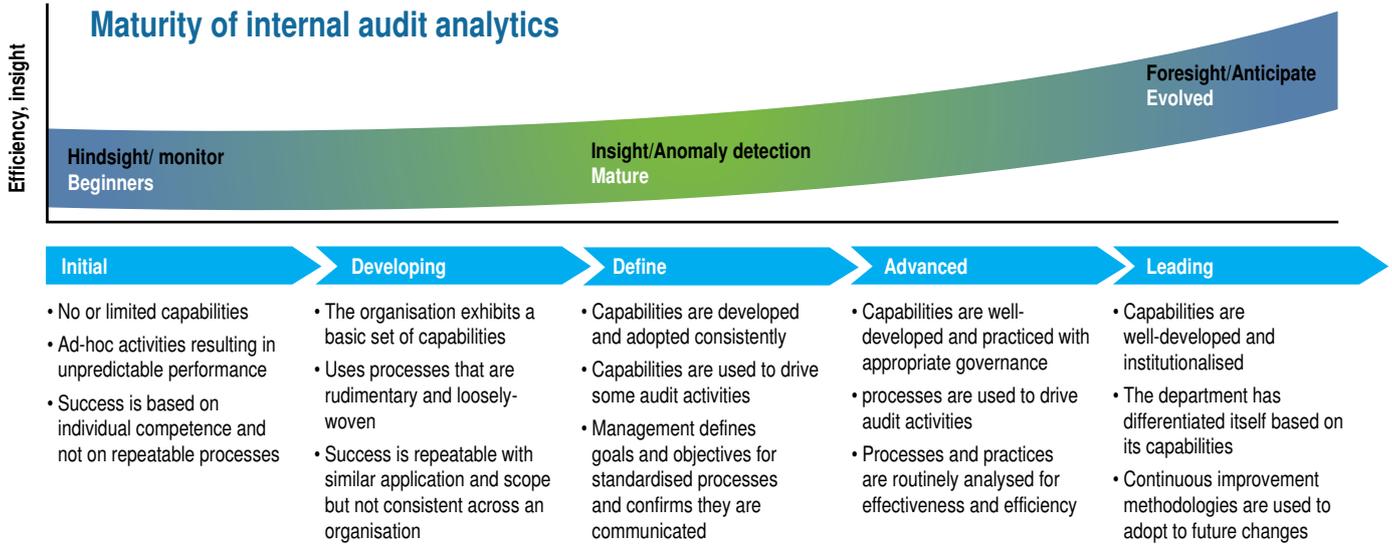
The table below shows two examples that illustrate the ability of data analysis to achieve audit effectiveness and provide added value for clients:

If detection risk represents the chance that the auditor will miss a material error, then using analytical procedures to bring more details to the auditor’s attention will help lower that risk. Performed during the risk assessment, analytical procedures result in a better understanding of the client and the work counts as audit evidence. When performed as further audit procedures in response to identified risks, the same data can be disaggregated so that smaller amounts in groupings will allow the auditor to more easily see relationships and isolate the cause for anomalies that need to be explained.

In certain cases, data analysis can also be used to help clients and auditors recover from challenges that occur when sampling is used. If the error rate in a sample used for substantive testing is higher than expected, the auditor can perform an analysis of the cause for misstatements identified, and use this information when deciding on how to project the errors. For example, if an unusually high number of errors in cash disbursements data are analysed, the auditor could summarise the sample and the population to better determine the impact the errors found have on cash disbursements.

Internal control testing

Analytical Procedure	Impact on Audit	Value for Client
Summarise entire year of cash disbursements by payee and compare with a similar summary from prior year.	Allows auditor to note excessive payments and payments to new payees. Auditing by exception is effective for fraud detection.	Efficiencies for check processing can be recommended in cases where excessive payments, while accurate, are wasteful for the client.
Compare inventory unit costs between years.	Lowers the cost to perform inventory testing in second and third years of an audit. Increases can be compared with expectations based on auditor’s knowledge of economic trends and other factors for prices.	By analysing all inventory items, special reports can be provided to clients that will help them see anomalies or errors in their inventory data that might not be material, but would still provide valuable action items.



Internal controls over the major transaction classes include manual and automated control activities that assure management’s directives are carried out. In most companies today, IT significantly affects control activities, especially in the areas of authorisation and segregation of duties (through passwords and other access controls), accuracy and completeness (through IT general controls over program change control and processing controls in each significant application). Testing controls to determine the reliability of details will be needed if the information system data is to be used for these kinds of analytical procedures.

Data analysis software is useful in facilitating tests of controls: it calculates sample sizes based on the desired confidence level and precision and computes achieved confidence to help the auditor document his or her conclusions.

Sampling modules are also available to extract the sample on a random, systematic or stratified random basis. Stratified random sampling is useful if the auditor is designing a “dual-purpose test” because the sample will randomly select items from each stratum per the auditor’s judgment as to how many items to select from each group.

Conclusions

Auditing is an iterative process that requires the auditor’s judgment to constantly evaluate the evidence and determine when procedures are sufficient to minimize audit risk. Data analysis software provides better coverage and reduction of risk than can be achieved manually or with spreadsheets alone. It is an auditor’s tool for gaining an understanding of the client’s systems and reporting environment; identifying anomalies, errors and potential fraud; and extracting all items of individual significance within a transaction or master file.

Accounting firms that are most successful in implementing data analysis incorporate the procedures into their audit process. They provide adequate training and support to staff and guard against over-relying on technical specialists. They overcome the challenge of insufficient staff levels by arming their field auditors with data analysis software, which frees their IT auditors to work on other areas.

Properly implemented and integrated into the audit, data analysis can solve the dilemma of the expectations gap concerning the auditor’s responsibility to detect material misstatements in the financial statements.

