

Factsheet: Use of Data Analytics

This resource reflects the 'Global Internal Audit Standards' published in 2024

Updated 2025

What are Data Analytics?

Data analytics is a scientific means used by internal auditors to analyse raw data, cleanse and transform it so that insights can be obtained and decisions can be made about that information. While data analytics has been used to interrogate financial systems for many years, more powerful tools and the availability of more non-financial data has seen its use expanded into all areas of risk where data is held.

Data analytics differs from 'continuous audit' and 'continuous control monitoring' which are generally implemented where an organisation has established a foundation of significant data analytics that are repeatable either in the internal audit plan or within a business function. Where the internal function periodically runs repeatable data analytics routines that identify control exceptions, this is called 'continuous audit'. Where the repeatable analytics occur as a feedback mechanism as part of management responsibilities (Line 2 assurance) the nature of the data analytics is called 'continuous control monitoring'.

For internal auditors, data analytics are used to test controls and validate that business risks are managed. This generally occurs at a point-in-time when an audit or assurance activity is scheduled. Rather than test a number of transactions, the entire population of transactions can be reviewed for greater coverage. Data analytics includes automated tools such as generalised audit software, test data generators, computerised audit programs, specialised audit utilities, and computer-assisted audit techniques (CAATs).

Why use Data Analytics?

Data analytics provides significant benefit for Internal Auditors and business unit management. It allows historical, real-time or predictive insight into business and control issues. The different skillsets, outcomes and investment needed largely determine the value an organisation will achieve from use of data analytics.

Internal audit should embrace the concept of technology to improve the audit process by interrogating large amounts of data through use of technology. This may include:

- › Data analytics for internal audit engagements
- › Financial statements data analytics.
- › Fraud audit data analytics.
- › Continuous auditing.

Data analytics has the benefit of being able to quickly identify and assess a particular business or control issue. This allows for timely reporting to line management, executive management and those charged with oversight. A problem or business issue can be articulated, with the relevant data sources analysed and compared to produce a data analytics outcome.

Data analytics benefits include:

- › Interrogate 100% of data.
- › Detect data anomalies and fraud.
- › Can access and analyse data from many disparate sources.
- › Scripted routines allow data analysis independent of the systems and people being audited.
- › 100% data population coverage with targeted sampling of higher-risk data points as opposed to a small, random sample.
- › Data integrity is maintained through logical control ensuring read-only data access.
- › Where purpose designed software is used, automated audit trails document the steps taken.
- › Test logic is captured with scripting and batching techniques.
- › Results are achieved in a short period of time.
- › Allows for quantification of control weaknesses.
- › Encourage root cause analysis to drive correction and improvement.
- › Provide insights to management to aid informed decision making.

The 'Global Internal Audit Standards' outline that internal audit functions should use technology to improve their processes. Standard 10.3 'Technological Resources' states that:

The chief audit executive must strive to ensure that the internal audit function has technology to support the internal audit process. The chief audit executive must regularly evaluate the technology used by the internal audit function and pursue opportunities to improve effectiveness and efficiency.

It is expected that data analytics will be utilised by the internal audit function where possible.

Furthermore, the results of data analytics needs to be documented as per the requirements of Standard 14.6 'Engagement Documentation'.

Data Analytics Checklist

Internal auditors should be in a defensible position whether to use data analytics for testing in each audit they perform.

To achieve this, there should be a formal process in place.

To ensure there is proper consideration of data analytics for every internal audit service, a formal assessment tool can be used such as a "data analytics checklist". An example is available in the IIA-Australia Resource Library.

The checklist serves as a prompt for the internal audit team, to consider and document the consideration of data analytics at engagement planning. The use of this checklist should be incorporated into internal audit methodologies.

Data Analytics Planning Checklist		
No.	Question	Response
1	Audit name	
2	Audit scope areas	
3	System(s) in scope	
4	Data extractable from system(s)?	
5	Data format(s) can be analysed?	
6	Data volume(s) can be handled?	
7	System owner(s)	
8	Data access facilitator	
9	Audit data requirements	
10	Data access method	
11	Analytics scope areas	
12	Analytics feasibility	
13	Analytics suitability	Yes: _____ No: _____
14	Summary rationale	

Periodic Data Analytics for Financial and Fraud Risk

It is relatively common for internal audit to run data analytic routines in enterprise resource planning (ERP) systems, generally over processes such as accounts payable, accounts receivable, payroll and procurement. These routines generally look for 'unusual' transactions, that is transactions that do not match the normal profile. This may occur monthly, quarterly, annually, or at a point in time. Planning for periodic data analytics could use a form like the example shown below:

Periodic Data Analytics for Financial and Fraud Risk			
No.	ICT System	Business Process	Data Analytic Routine
In Place			
1			
2			
3			
4			
5			
6			

Possible Future Application			
1			
2			
3			
4			
5			
6			

Continuous Auditing

Continuous auditing is regular (continuous) use of technology to interrogate large populations of data. This is deployed to monitor transactions, for example compliance control testing. Live data is typically supplied by ICT, with data imports usually automated. The idea is to monitor transactions as they occur so anomalies can be immediately followed-up. It should be noted that continuous auditing need not necessarily be run by internal audit, but internal audit can be a user of this service. If data analytic routines run continuously, they would be categorised as continuous auditing if run by Line 3 internal audit or continuous control monitoring if run by Line 1 or Line 2. In many organisations, finance runs continuous control monitoring.

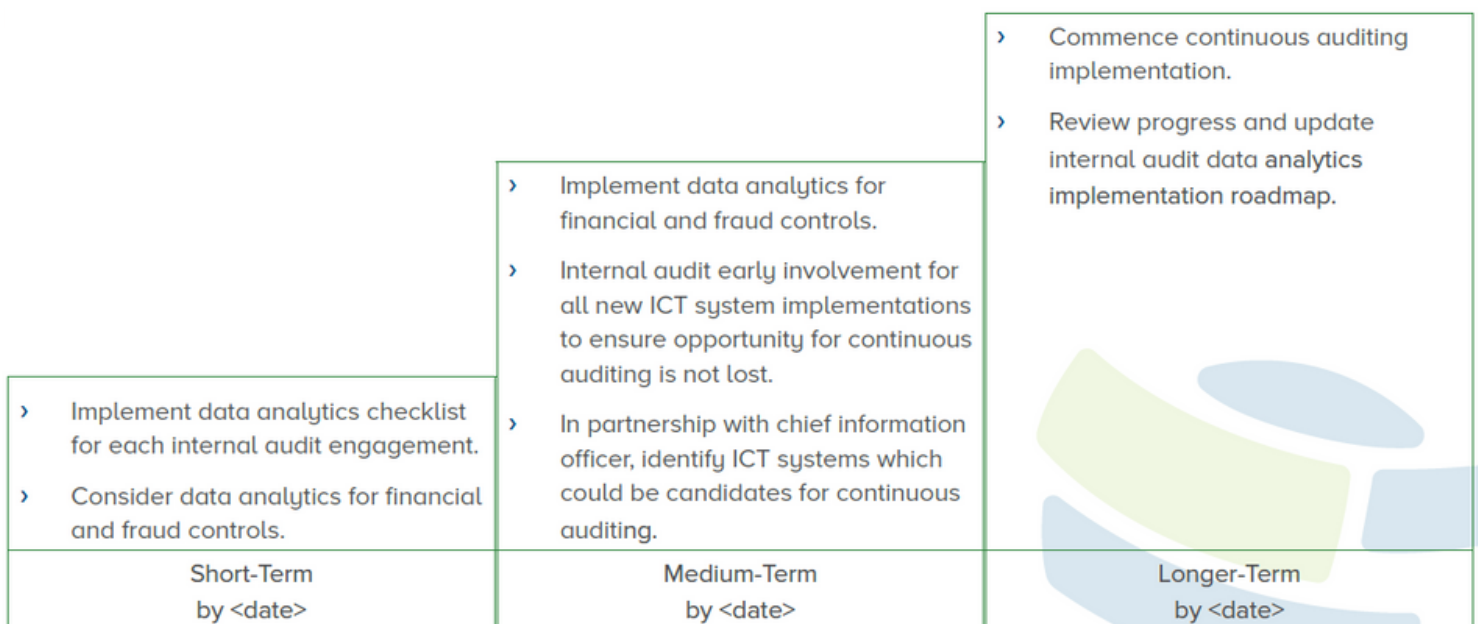
Continuous auditing consists of automated collection of evidence and indicators. Information comes from ICT systems, processes, transactions and controls on a frequent or continuous basis. This information enhances audit capability and helps ensure compliance with policies, procedures and regulations. In many cases, continuous auditing can act as an early warning system to detect control failure on a more timely basis than traditional approaches.

Continuous auditing steps include:

- › Establish clear communication channels with the chief information officer.
- › Establish priority areas.
- › Identify audit rules.
- › Determine process frequency.
- › Configure parameters.
- › Manage results and follow-up.
- › Report results.
- › Assess and document emerging risks.

Implementation Roadmap

When considering the extent of data analytics that could be implemented for internal audit work, it is useful to develop an implementation roadmap to guide the data analytics strategy and ensure it is practical and cost-effective, and you do not 'over commit and under-deliver'. An example is shown below:



Acknowledgement

The content of this Factsheet has been informed by the Sydney Trains Internal Audit function where we first observed use of a 'data analytics checklist'.

Helpful References

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