Factsheet: Use of Data Analytics

What are Data Analytics?

Data analytics are structured, mathematically-based processes used by internal auditors to analyse raw data and then make conclusions about that information. Data analytic techniques are automated processes and algorithms used to translate raw data into something meaningful for users. 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 audit function collects evidence and other indicators, the nature of data analytics is called 'continuous audit'. Where the repeatable analytics occur as a feedback mechanism as part of management responsibilities (Line 1 or Line 2 assurance), the nature of data analytics is called 'continuous control monitoring'.

For internal auditors, data analytics are used to test controls and validate 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 use of generalised audit software, test data generators, computerised audit programs, and specialised audit utilities.

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.

The IIA-Australia Factsheet 'Data Analytics Planning' discusses the rationale for use of data analytics in internal audit work.

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

› Consideration of data analytics for use in each internal audit engagement using a data analytics planning checklist.

› Periodic data analytics for financial and fraud risk.

› Continuous auditing — use of technology deployed to interrogate large populations of data to continuously monitor transactions.

Data Analytics Planning Checklist

Computer-assisted audit techniques using data analytics should be considered for every internal audit engagement.

While not every internal audit engagement will require the use of computerised audit techniques, the 'International Standards for the Professional Practice of Internal Auditing' contained in the 'Internal Professional Practices Framework' (IPPF) issued by the Institute of internal Auditors (IIA) indicate that due professional care requires the use of such techniques wherever appropriate.

To ensure there is proper consideration of data analytics for every internal audit engagement, a formal assessment tool such as a data analytics planning checklist should be used. An example is shown on the next page.

No.	Question	Response			
	Data Analytics Planning Checklist				
1	Audit name				
2	Audit scope				
3	BaU analytics?				
4	ICT system				
5	Data population				
6	Transaction volume				
7	System owner				
8	Data access facilitator				
9	Audit data requirements				
10	Data access method				
11	Best available analytics				
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.

No.	ICT System	Business Process	Data Analytic Routine
	Periodic Data Analytics for Financial and Fraud Risk		
In Place			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Possible Future Application			
1			
2			
3			
4			
5			

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.

Helpful References

Factsheet 'Data Analytics Planning', Institute of Internal Auditors-Australia

Factsheet 'Data Analytics and Continuous Control Monitoring', Institute of Internal Auditors-Australia

Factsheet 'Sampling and Testing', Institute of Internal Auditors-Australia

Factsheet 'Using Internal Audit Data', Institute of Internal Auditors-Australia

White Paper 'Data Analytics Using Excel', Institute of Internal Auditors-Australia

White Paper 'Data Analytics Using SQL', Institute of Internal Auditors-Australia

White Paper 'A Conceptual Framework for Effective Audit Analytics', Institute of Internal Auditors-Australia

Short-Term by <date>	Medium-Term by <date>	Longer-Term by <date>
› Implement data analytics checklist for each internal audit engagement. › Consider data analytics for financial and fraud controls.	› Implement data analytics for financial and fraud controls. › Internal audit early involvement for all new ICT system implementations to ensure opportunity for continuous auditing is not lost. › In partnership with chief information officer, identify ICT systems which could be candidates for continuous auditing.	› Commence continuous auditing implementation. › Review progress and update internal audit data analytics implementation roadmap.