

2021

Audit Quality Unit

Data analytics in Ireland's statutory audit market

Mission

To contribute to Ireland having a strong regulatory environment in which to do business by supervising and promoting high quality financial reporting, auditing and effective regulation of the accounting profession in the public interest.

About IAASA

The Irish Auditing and Accounting Supervisory Authority ('IAASA' or 'the Authority') is designated as the competent authority in Ireland responsible for quality assurance reviews of statutory auditors and audit firms that carry out statutory audits of public-interest entities.

The Authority accepts no liability and disclaims all responsibility for the consequences of anyone acting or refraining from acting in reliance on the information contained in this document or for any decision based on it.

Table of Contents

1: INTRODUCTION.....	2
2. WHY ARE AUDITORS USING DATA ANALYTICS?	2
Engagement and efficiency.....	2
Risk assessment.....	3
Analysis of large populations	3
Unpredictability.....	3
3. CURRENT USE OF DATA ANALYTICS IN IRISH AUDIT FIRMS	3
Extent of use	3
Supporting the use of data analytics.....	4
Data analysis across audit areas	4
4. WHAT CHALLENGES FACE AUDITORS WHEN USING DATA ANALYTICS?.....	5
Protecting independence	5
Extracting good quality data.....	5
Applying globally developed data analysis tools.....	5
Engagement economics	5
Evaluating results.....	6
Evidencing data analytics procedures	6
Data protection.....	6
5. FUTURE DEVELOPMENTS IN DATA ANALYTICS IN AUDIT	6
6. WHAT SHOULD AUDIT COMMITTEES CONSIDER?	7
7. AUDIT REGULATORS' FOCUS	7
8. USEFUL MATERIALS.....	8
8. APPENDICES.....	9
Appendix 1. Examples - Supports for the use of data analytics	9
Appendix 2. Examples - Data analytics across audit areas.....	16

Introduction

Phrases like 'big data' and 'data analytics' are prevalent across many business sectors. Audit firms in Ireland are increasingly referring to data analytics applications within audit tenders, marketing campaigns and on social media.

This paper discusses the use of data analytics by statutory auditors in Ireland, exploring the audit areas where data analytics are used and how firms support the use of data analytics in audit. The paper discusses challenges faced by auditors in using data analytics and looks at plans for further development and roll out of data analytics in audit. The paper also identifies key considerations for audit committees in this area. The paper concludes by setting out the focus of audit regulators with regard to data analytics, both from an international and an Irish perspective.

The information in this paper is sourced from a survey completed by five Irish statutory audit firms during 2020. Each of the audit firms surveyed is a statutory auditor to public-interest entities in Ireland. IAASA held follow-up discussions with these audit firms, where the audit firms demonstrated their use of data analysis tools across various audit areas. The survey and follow-up discussions with the participating audit firms covered topics such as: the extent of the use of data analytics in audit; types of data analysed; development and roll out of data analytics; and frameworks for compliance with regulations and auditing standards.

IAASA wishes to thank the participating audit firms for their contribution to this paper, in particular, for the extensive time spent by these firms in demonstrating data analysis tools. Whilst this paper gives a snapshot of some of the data analysis tools used by Irish audit firms, there were many more tools demonstrated to IAASA by the participating audit firms.

The appendices to this paper provide some examples of data analysis supports and the use of data analysis in audit areas. The examples included in the appendices show where there were common features or approaches taken by audit firms. The examples set out in the appendices to this paper do not capture all of the data analysis tools or supports demonstrated to IAASA. Furthermore, the use of data analytics in audit is continuously evolving at a rapid pace and the information in the appendices may have further developed since they were demonstrated to IAASA.

Why are auditors using data analytics?

Engagement and efficiency

Audit firms have noted that audit teams gain a more in depth understanding of the audited entities' businesses and transactions through the use of data analytics. This allows for more meaningful conversations with the management of audited entities. Audit firms have also noted that the use of data analytics can be more efficient than traditional audit methods, reporting that using data analytics can result in less time working on specific areas without compromising on audit quality. Audit firms have also reported that audit teams find the use of data analytics interesting, noting that where data analytics are used, the audit is more engaging to work on.

Risk assessment

Data analytics can deepen an auditor's understanding of an entity and its processes. Data analytics provide auditors with a different perspective through a detailed and risk-focused analysis. When defining audit risk, data analytics can help auditors to look at the full population of transactions recorded in an audited entity's systems during the year. Audit firms have noted improvements in audit quality due to the increased focus on risks.

Analysis of large populations

Data analytics allows for entire populations to be analysed and the performance of tests across an entire population. Data analytics also allows for large populations to be stratified and can identify outliers and exceptions within these datasets. Using data analytics, auditors can apply improved sampling techniques. Firms have noted improvements in audit quality due to the ability to identify unusual transactions more easily.

Unpredictability

Through data analytics, auditors can perform analyses on populations in new or unexpected ways. Data analytics allow auditors to apply techniques to identify unusual patterns and exceptions in the entity's datasets that might otherwise go undetected.

Current use of data analytics in Irish audit firms

Extent of use

All firms noted that the use of data analytics in audit is continuing to be rolled out and developed. IAASA's experience in performing inspections of audits of public-interest entities would suggest that the degree of application of audit analytics tools within statutory audits is not as prevalent as it might appear. Although survey respondents all reported some use of data analytics in audit, the extent to which audit firms use data analytics and the sophistication of the data analysis tools varied significantly across participating firms.

One firm encourages the use of standard data analysis on all engagements where feasible to enable more efficient testing and a more detailed risk assessment and understanding of the business. The firm mandates data analysis on journal entries on all audit engagements, where feasible. This firm has noted that their aim for the next year is to have 100% of their audits which have over 1,000 audit hours using, at a minimum, their standard general ledger data analysis tool. [Firm #2]

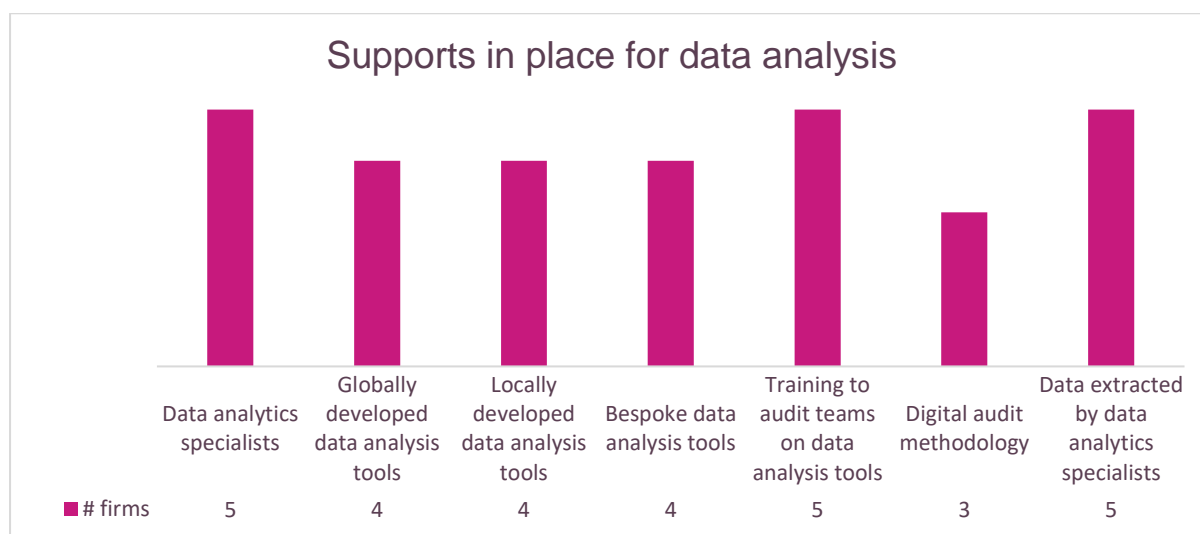
Another firm noted that in the 4 years to 2019, usage of data analytics in audit had increased by over 50 times. This firm noted that the time spent on production of data analyses has decreased as the firm's data analytics specialists have become more experienced. This firm had mandated the use of certain data analysis tools on a small population of audit clients with the support of an audit partner and then rolled this out on a phased basis to the wider audit population. This firm also mandates data analysis on journal entries on all audit engagements, where feasible. [Firm #3]

At the other end of the scale, one firm noted that all members of the core audit team are trained in the use of data analysis techniques and regularly use these on audit assignments, for example in relation to

journal entry testing. The firm's innovation working group has encompassed data analytics over the past ten years and a new data analytics working group has been created with membership across all audit industry sectors. This new data analytics working group seeks to improve usage of data analytics across the audit practice. The firm has noted that there has been significant investment both internationally and in Ireland in this area and this investment has increased exponentially in recent years. For example, the firm's new global audit platform has built in data analysis tools. [Firm #1]

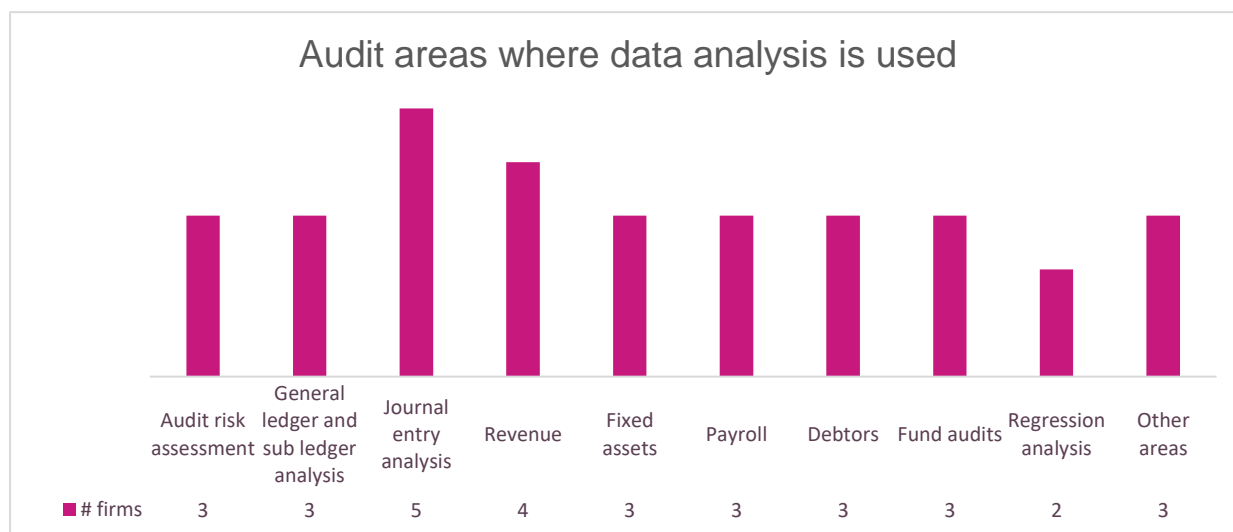
Supporting the use of data analytics

The chart below shows the supports implemented by firms for the use of data analytics in audits. These supports are discussed in detail in Appendix 1.



Data analysis across audit areas

The chart below shows the audit areas where firms reported the use of data analysis tools. The data analysis tools used across audit areas is discussed in more detail in Appendix 2.



What challenges face auditors when using data analytics?

Protecting independence

The data analysis tools used by firms to perform audit procedures may also allow the firm to provide further analyses on the audited entities' data. If sharing the results of data analysis with audited entities, audit firms need to consider the Ethical Standard for Auditors (Ireland) which prohibits auditors from providing services that involve playing any part in the management or decision making of an audited entity. The Ethical Standard for Auditors (Ireland) also sets out the rules around assessing threats to independence and associated safeguards. Depending on the nature and extent of the data analysis provided to an audited entity, threats related to self-interest, self-review, advocacy and familiarity may need to be considered.

Extracting good quality data

A key challenge for audit firms is the extraction of good quality data. Firms have noted that, in some cases, the audited entity's financial reporting systems are antiquated and do not provide the required information. In other cases, audited entities have invested in new systems but are not using them to their full potential. Other examples of poor quality data can be driven by an entity's process, such as batch posting which makes it difficult to separate individual transactions. Firms noted that this challenge leads to difficulties in obtaining enough detail to perform a meaningful data analysis.

In many instances, Firms have tools in place to support data extraction, however some entities are reluctant to provide auditors with access to their systems in this way. Firms have noted that entities often are unclear on what exactly the auditor intends to extract, or have concerns that data extraction may cause in IT issues.

Applying globally developed data analysis tools

One firm reported using data analysis tools that are developed locally, the firm noted that the data analysis tools developed by the firm's global network often focus on the larger financial reporting systems (such as SAP and Oracle). The firm noted that many Irish clients are still using smaller financial reporting systems or do not implement all modules of the larger financial reporting systems. At this firm, they have found that the data analysis tools developed by the firm's global network did not always work in an Irish context as the data available to the Irish firm was not always adequate. [Firm #3]

Engagement economics

Firms are faced with the challenge of achieving a level of data analysis that provides sufficient and appropriate audit evidence without spending excessive time on detailed analysis that will not add value to the audit. Firms have reported that, in some instances, it is more efficient to perform traditional substantive audit procedures than to run a suite of data analytical tests. Firms cited examples of audited entities with no or minimal transactions in a year.

Evaluating results

Applying data analytics can provide auditors with extensive information. Firms noted the challenge to ensure that audit teams understand this information and appropriately identify where further audit evidence is needed.

Evidencing data analytics procedures

Audit files must document the nature, timing and extent of the audit procedures performed. The datasets used in the data analysis tools can be very large and therefore can be difficult to upload into the audit software. Further to this, audit software may not be designed to capture data analysis tools and therefore only output documents such as memorandums are retained on the audit file. Auditors also face a challenge in ensuring that the documentation on the audit file adequately explains the data obtained and the firm's manipulation and subsequent use of the data to arrive at any conclusions.

The development of artificial intelligence in data analytics increases the challenge for auditors. Artificial intelligence tools continue learning through observations of data in real time, therefore leading to difficulties in evidencing the exact tests run on the data.

Data protection

Irish audit firms are required to comply with the EU's general data protection regulation (GDPR). GDPR must be considered by firms in their use and storage of the data obtained by the firm for data analytical procedures.

Future developments in data analytics in audit

One firm is actively promoting the use of data analysis across all audit engagements and is monitoring this usage. The firm's global network is piloting a digital version of the firm's global audit methodology to enable maximum use of data analytics across the entire audit as part of data driven audit. [Firm #2]

One firm noted that significant investment is being made in data analysis at the firm's global network level which may have an application in the Irish market. The firm noted that local development of new data analysis tools is dependent on where the firm sees a need. A data analysis tool will only be developed where the firm feels it will provide sufficient appropriate audit evidence and where there is scope to roll the same analysis out on other engagements. The firm will continue to develop data analysis tools that may be specific to an audit engagement and will allow for significant efficiencies going forward on that audit while maintaining audit quality as a focus. [Firm #3]

Another firm noted that they intend to continue the process of developing data analysis tools. The firm's strategy is to ensure that the benefits of the advancements in technology and the knowledge within audit teams of their audit engagements will continue to benefit the audit practice. [Firm #4]

One firm noted that the majority of future development is coming from the global practice, with the next global data analysis tool expected for general use taking shape through the use of artificial intelligence. Additionally, having trained a large percentage of the firm's staff, individual audit teams are developing data analysis tools for use on their audit engagements and there are also tools being developed centrally in Ireland, for use across the practice. The firm noted that there is a significant

firm wide programme with digital accelerators, digital academies and central support of journal based technologies. [Firm #5]

One firm noted that focus is being placed on developing the relationship with the global practice to implement new data analysis tools with multiple projects ongoing to implement data analysis on several audit files. [Firm #1]

What should audit committees consider?

When auditors report the results of data analytical audit procedures to an entity's audit committee, this can provide new perspectives and insight into the audited entity's transactions and performance. The results of data analytics procedures allow the auditor to present visualisations, details of exceptions and granular information on transactions to audit committees. Audit committees should consider the overall reporting from auditors in the context of the audit risks relating to the entity. Audit committees should continue to question whether the relevant audit risks have been adequately addressed by the procedures performed by the auditor.

Audit committees should consider whether the audit team had adequate knowledge and skills to perform and evaluate the results of data analytical audit procedures. Audit committees should also consider the completeness of the data used by the auditor in data analysis procedures and the reasons for any data omissions.

It is useful for audit committees to compare the audit results reporting to the auditor's audit plan. This gives insights into whether there were any additional higher risks identified through the performance of data analytics procedures and into whether the auditor was unable to perform any planned data analytics procedures.

Audit tenders typically present an audit service that will span across a number of years, giving scope for auditors to discuss the potential use of data analytics that are in development and expected to be deployed during the term of the audit engagement. Audit committees should be clear on exactly what data analysis auditors can provide to the audited entity and should seek to understand the firm's existing data analysis tools and levels of investment in further developing these tools.

Audit regulators' focus

Audit regulators around the world are focused on understanding the development and roll out of data analysis tools and ensuring they are keeping pace with any changes in how audits are performed. To support this effort, the International Forum of Independent Audit Regulators (IFIAR) established a [technology task force](#) in 2020 to explore the audit quality impact of technology audit tools used widely around the world by the six largest audit firm networks.

The Committee of European Auditing Oversight Bodies (CEAOB) obtains details on the use of data analytics by the Big-4 audit firms in Europe. Data analytics is also dealt with through the CEOB inspection sub-groups colleges of Big-4 audit firms.

In Ireland, IAASA continues to expect auditors to ensure that audits comply with the International Standards on Auditing (Ireland) and obtain sufficient and appropriate audit evidence to support the opinion in the auditor's report.

Questions IAASA ask when reviewing data analytics audit work

- Are there appropriate safeguards to maintain **independence** and ensure that there is a clear distinction between data analytics audit procedures and advisory services?
- Do the audit team, and any data analytics specialists involved in the audit engagement, collectively have the appropriate **competence and capabilities** to perform the data analytics procedures?
- Do the **data analytics specialists understand** the scope and purpose of the data analytics procedures being applied?
- Is there an audit trail evidencing that the **integrity of the data** has been maintained throughout the data analysis process?
- Is the work of data analytics specialists adequately reflected in the **audit working papers** as required by the auditing standards in relation to evidence, documentation and archiving?
- Is there sufficient and appropriate audit evidence in the audit working papers to **support the opinion** in the auditor's report?

Useful materials

International Auditing Standards on Auditing

IAASA adopts the [International Auditing Standards on Auditing \(Ireland\)](#). These standards set out the requirements to be followed on all statutory audits in Ireland, including those audits using data analytics.

Publications from other audit regulators

Some audit regulators in other jurisdictions have performed thematic reviews around the use of data analytics in audit.

In the UK, the Financial Reporting Council published a [thematic review](#) in March 2020 on the use of technology in the audit of financial statements.

In the US, the Public Company Accounting Oversight Board (PCAOB) have noted that auditors are expanding their use of technology-based tools, including data analytics, to plan and perform audits. The PCAOB have established a [data and technology task force](#) to assist in obtaining insights into the use of data analytics and certain emerging technologies. The PCAOB's latest [update](#) on its data and technology research project was published in May 2021.



Appendix 1

Examples – Supports for the use of data analytics

Appendix 1

Examples – Supports for the use of data analytics

Specialists in data analytics

All five firms reported having a dedicated team of data analytics specialists.

[Firms #1 #2, #3, #4, #5]

One firm has a dedicated team of data analytics specialists including data analysts and digital audit strategists. The data analysts specialise in transforming and cleansing entity data, preparing analytics tools and developing bespoke analysis. The digital audit strategists are experienced auditors and support audit teams to effectively use data analytics in the audit.

The firm has a digital audit support network in place which is composed of auditors that can provide support to audit teams in applying data analytics and provide guidance in digital audit methodology.

[Firm #2]

One firm reported that the data analytics specialists are separate from the core audit team. The firm also reported having audit team members with experience in using data analysis tools to aid in the development of the audit analytics being performed on their engagement. The firm also has access to the global network data analytics specialists.

[Firm #1]

One firm has a separate team of data analytics specialists for more complex analytics related issues and to create bespoke data analysis tools.

Additionally, the firm has trained its audit teams on data analytics along with a network of people in those teams who have received additional specialised training.

[Firm#5]

One firm reported that, as well as a team of data analytics specialists, there is a network of analytics champions within the audit practice. The analytics champions are auditors at all levels who take analytics related training that is above the level given to all audit practitioners. The data analytics champions will generally specialise within one area of data analytics. The firm has stated that the goal of this structure is to facilitate peer-to-peer support for audit teams, with someone at every level to answer the questions of their peers in relation to the use of data analytics. Another goal is to continue to upskill the overall audit population and ensuring that the data analytics experts are not repeatedly answering the same questions.

[Firm #4]

One firm has split its dedicated team of data analytics specialists into two parts, one part working on the development of new data analysis tool or improvement of existing ones, and the other working on processing the data analysis tools that exist. This team is within the firm's IT audit department.

[Firm #3]

Appendix 1

Examples – Supports for the use of data analytics

Data analysis tools

All five firms use data analysis tools developed by the firm's global network and also develop data analysis tools locally.

[Firm #1, #2, #3, #4, #5]

One firm noted that the data available to the firm for Irish entities wasn't always adequate for the globally developed data analysis tools.

A locally developed data analysis tool allows the firm to consider the information already available to them for an audit and develop data analysis around this information.

[Firm #3]

One firm supplements the globally developed tools with off the shelf data analysis tools for basic data analytics.

[Firm #5]

Four firms develop bespoke data analysis tools.

[Firm #1, #2, #4, #5]

One of these firms supplements the globally developed tools, with bespoke data analysis tools developed for more nuanced analysis on specific audit engagements.

[Firm #2]

One of these firms noted that, for complex engagements, the firm's data analysis specialists create bespoke data analysis tools to test entire populations in audit areas such as payroll, revenue, cost of sales, and property plant and equipment.

[Firm #4]

Appendix 1

Examples – Supports for the use of data analytics

Data analysis tools (continued)

One firm supplements the globally developed data analysis tools with a structured development model.

There is a requirement for an audit team to begin the structured development model process.

The proposed data analysis tool is assessed by a panel of potential users to understand the broader implications or benefits. If deemed appropriate, the development of the tool is then placed on a user backlog. The firm's team of data analytics specialists develop data analysis tools.

Once the data analytics specialists have availability for new development, there is a vote on which backlog items should be worked on next. Once the development of the data analysis tool is complete, it is put through a quality control process and user acceptance testing before a member of the leadership team will agree to release it to the wider population for use. The leadership team refers to a panel of senior audit team members and senior developers.

To meet the firm's quality control objectives, the development team create a document for initial deployments or subsequent releases and updates which captures version changes, design evaluation, the process for developing and approving the design and the evaluation and testing approval.

[Firm #4]

Appendix 1

Examples – Supports for the use of data analytics

Extracting data

In all five firms, the data can be extracted by the firm's data analytics specialists.

[Firm #1, Firm #2, Firm #3, Firm #4, Firm #5]

One firm noted that it is not exclusively the audit team that provides the data analytics team with the data, as the data analytics team may also obtain the information directly from the audited entity.

[Firm #5]

In two firms, the team responsible for extracting data depends on the complexity of the client's systems and the data available

[Firm #2, #4]

One firm noted that for standard data analysis, the data for use is extracted either by the audit team and transferred to the data analytics team, or directly extracted by the data analytics team.

[Firm #2]

Senior audit team members must approve any unresolved issues relating to the data, before the data analysis takes place.

[Firm #2]

One firm noted that the audit team organise extraction of data from the audited entity either by using an extraction tool and providing the audited entity with a list of the fields required for use in the data analysis. The firm noted that its strategy is to up-skill our auditors to extract data themselves where possible.

For more complex data extractions, data analytics specialists will extract the data.

[Firm #4]

Data analytics specialists can support any complex data extraction or a requirement for data cleansing.

[Firm #4]

Appendix 1

Examples – Supports for the use of data analytics

Interaction between the audit teams and data analytics specialists

Three firms noted that the data analytics team are responsible for the creation of the data analysis and provide the output to the audit team.

[Firm #2, #3, #5]

In one firm, the data analytics specialists also provide the audit team with a memorandum detailing the data cleansing and loading process.

[Firm #5]

In one firm, the data analytics team must discuss any issues arising with the audit team and provide a memorandum detailing the preparation of the data, validation checks to ensure completeness and accuracy, and any unresolved issues noted.

[Firm #2]

Training audit teams

All five firms training provide training to audit teams on the use of data analysis tools.

[Firm #1, #2, #3, #4 and #5]

Three firms reported the provision of training in areas such as the analysis of the output and the documentation.

[Firm #2, #3 and #5]

One firm gives a dedicated training course for the period of rollout for any development, change or new data analysis tool introduced. This training is then embedded in the training courses.

[Firm #2]

In one firm, supplementary to the training on data analytics that is provided to all audit teams, the data analytics champions within the audit department receive further specialised training. The specialised training is designed to allow the data analytics champions to achieve proficiency in specific areas or in using specific tools.

[Firm #4]

Appendix 1

Examples – Supports for the use of data analytics

Digital audit methodology

Three firms reported using a digital audit methodology.

[Firm #1, Firm #2, Firm #5]

One of these firms reported that they have recently begun to roll out a digital audit methodology, which is currently being piloted on a number of Irish audit engagements, but is intended for wider use in Ireland in the near future.

[Firm #2]

Appendix 2

Examples – Data analytics across audit areas

Appendix 2

Examples – Data analytics across audit areas

Audit risk assessment

One firm uses an off the shelf data analysis tool during the risk assessment phase of the audit.

The firm explained that the data analytics procedures used in the risk assessment phase do not substitute any audit procedures planned or performed to address the audit risks identified.

[Firm #1]

IAASA observed an example of this data analysis and noted the following:

- The data was checked by an experienced team member for completeness and accuracy before being included as part of the data analysis.
- The data analysis tool allowed for all excel tables to be checked for the appropriate data points prior to using the outputs provided by the tool.
- The audit file detailed the process followed by the engagement team to obtain and transform the data.
- In development of the analysis, the audit team engaged with data analytics specialists and sector specialists to understand whether the analysis carried out was appropriate and appeared reasonable.

[Firm #1]

The firm noted that this type of data analysis has identified issues that resulted in significant audit adjustments. The firm believes that the issues identified through this data analysis would likely have been identified as part of the audit procedures, however the data analysis identified the issues at a much earlier stage of the audit process resulting in a swifter resolution.

[Firm #1]

Appendix 2

Examples – Data analytics across audit areas

Audit risk assessment (continued)

One firm uses bespoke data analysis tools for risk assessment.

The firm explained that the purpose of this is to assess risk and also to help the audit teams determine the level of risks identified. The firm noted that the risk assessment data analytics procedures can also supplement the sample selection process on audit engagements where outliers have been identified.

[Firm #4]

IAASA observed an example of this data analysis and noted the following:

- The audit file includes detailed memorandums discussing how the data is obtained, validated, transformed and loaded.
- The audit file details the scope of the work and the output provided to the audit team.

[Firm #4]

Appendix 2

Examples – Data analytics across audit areas

General ledger and sub ledger analysis

Three firms use a general ledger and sub-ledger data analysis tool

In one firm, the tool takes general ledger data, trial balance data and the audited entity's chart of accounts and creates an analysis that can be used for planning, understanding and substantive procedures.

[Firm #2, Firm #4, Firm #5]

Snapshot one firm's use of a general ledger and sub-ledger data analysis tool

[Firm #2]

The general ledger analysis can create process maps, preparer maps, date analysis of accounts, segregation of duties reports and account correlations.

The tool enables layering of audit evidence through a deep understanding of audited entity's process for the relevant transactions and audit work performed on related accounts.

The tool has also automated certain processes such as creation of financial statements and lead schedules for individual line items within the financial statements. These automated reports come with clickable links to enable a more detailed view of any specific item in either report.

The tool enables a detailed analysis of the movements on accounts, the churn of the population, the risk profile of the population and a transaction type analysis.

The tool allows a drill down into the detail of items identified for analysis at a transactional level and the selection of a sample for testing using a statistical sampling method.

The sub-ledger analyser can perform reconciliation reports into the general ledger analysis. The tool is most commonly used for accounts receivable or accounts payable. The data inputs are the sub-ledger open items listing as of the audit period and customer or vendor master files.

Appendix 2

Examples – Data analytics across audit areas

Journal entry analysis

Four firms use a specific journal entry data analysis tool

[Firm #1, Firm #3, Firm #4, Firm #5]

In one firm, the journal entries and trial balance data are input to the tool by the data analytics specialists, along with the audit team's criteria for the high risk journal entries. The analysis can be re-run if any further high risk journal entries are subsequently identified.

[Firm #3]

In one firm, teams in a service delivery centre load the journal entry data using an import wizard into a tool that is available on the firm's internal network. The tool includes a suite of standard journal entry tests and also allows auditors to customise and analyse journals further. This tool is used for larger audits. This tool can be used for multi-entity engagements.

[Firm #4]

In a third firm, the data analytics specialists provide audit teams with a secure link to a web based data analysis application. The application is pre-loaded with standard journal entry tests and the audit team can customise and perform more client-specific testing as required.

[Firm #5]

Appendix 2

Examples – Data analytics across audit areas

Journal entry analysis (continued)

Three firms use other data analysis tools in auditing journal entries

[Firm #2, Firm # 4, Firm #5]

One firm uses a Microsoft Excel add-in to perform advanced filtering to support with journal entry testing.

The firm notes that this type of data analysis is used by audit teams for smaller audited entities with a low volume of journal entries.

[Firm # 4]

One firm uses its general ledger analysis tool to identify higher risk journal entries.

The firm notes that the tool is used to perform a data-driven, top-down, risk-based approach to identify higher risk journal entries. The tool provides a more detailed understanding of journal entries and processes relating to the financial statements and assists in understanding management's opportunities to override controls.

[Firm #2]

Appendix 2

Examples – Data analytics across audit areas

Revenue

One firm runs a data analysis, including a predictive analysis of revenue based on the related accounts

The firm explained that for revenue data analysis, data from a number of revenue and related accounts such as debtors, cash and VAT are provided to the data analytics team. The analysis generates audit working papers to encourage testing of cash receipts and the debtors testing and various risk related sections such as a VAT analysis, cut-off, year on year comparisons and debtors aging.

[Firm #3]

IAASA observed an example of this data analysis and noted that revenue was reconciled from a separate system at the entity to the entity's financial reporting system. This provided the audit team with information to perform a more detailed analysis.

[Firm #3]

One firm uses bespoke data analysis tools in the audit of revenue.

The firm uses this tool to re-perform journal entry posting between revenue, trade receivables and cash and thereby to analyse the correlation between those accounts.

[Firm # 2]

The data analysis tool is an off the shelf tool that enables viewing of the bespoke tables to ensure that a completeness and accuracy check can be performed.

The audit team work with the firm's data analytics team to develop the analysis required.

[Firm #2]

The data analytics team provide the audit team with a memorandum detailing the validation checks on the data as a whole, the data captured as part of each data set and descriptions of each analysis performed.

[Firm #2]

Appendix 2

Examples – Data analytics across audit areas

Revenue (continued)

One firm noted that the data obtained for journal entry testing is also used in some instances for revenue analysis

The firm noted that before this data can be used, there is the expectation that the audit team have a good understanding of the process, that revenue recognition is straightforward, that there are good cash controls in place and that there are no batch postings which may skew the outputs.

[Firm # 5]

The firm can use the data to correlate revenue with expected related accounts enabling them to identify transactions that are not settled in the expected transaction flows. The identified transactions are then subject to further testing.

[Firm #5]

The data analysis tool also provides the audit team with a randomised sample to enable further testing beyond those items that would have been identified as unusual as part of the correlation process.

[Firm #5]

Appendix 2

Examples – Data analytics across audit areas

Fixed assets

Three firms use a data analysis tool to analyse an audited entity's fixed asset register.

[Firm #2, Firm #4, Firm #5]

One firm noted that the analysis shows purchases and disposals in the year, length of asset life and depreciation calculations. The output of the analysis can also be used for creating a fixed assets disclosure note to ensure that this disclosure is appropriate.

[Firm #2]

Payroll

Three firms use a data analysis tool to analyse an audited entity's payroll.

[Firm #2, #4, #5]

One firm noted that the tool is used to provide supplementary analysis where the general ledger based data analytics is insufficient to conclude on relevant assertions due to complexity of the payroll accounting system and specific audit risks arise. The tool focuses on detailed payroll transactions including components of gross pay, deductions, staff turnover and comparison of gross pay to headcount and relevant relationship. This tool does not assist with the calculation of payroll.

[Firm #2]

The firm noted an example where this data analysis tool was used when auditing an entity that had been severely impacted by COVID-19, the entity had made many redundancies and had undergone a restructuring.

The data analysis tool enabled the audit team analyse all payroll related transactions in the year and to ensure that the timing and amounts of payments (both in number and value) appeared appropriate.

[Firm #2]

Appendix 2

Examples – Data analytics across audit areas

Fund audits

Three firms reported using data analysis tools in their audit of funds

[Firm #3, Firm #4, Firm #5]

One firm noted that their second most used data analysis tool was one used for funds audits

The tool provides standardised outputs for the majority of funds engagements and includes descriptive data logic to ensure that re-performance of all analysis is possible. The tool includes an analysis of risks that would be considered common to most funds audits.

[Firm #4]

Audit teams must separately carry out an appropriate risk assessment for each audit engagement to ensure that they are not omitting risks that have not been identified by the tool.

[Firm #4]

The output includes details of the analysis and a prompt for the audit team to perform testing on information produced by the entity.

There is also an interactive portal for any further investigation the audit team wishes to perform.

[Firm #4]

Appendix 2

Examples – Data analytics across audit areas

Debtors

Three firms reported using data analysis tools in their audit of debtors

[Firm #2, Firm #4, Firm #5]

One firm has data analysis tools to help with workflows to ensure consistency across files in areas.

The firm showed an example of this with a data analysis tool used to help the auditor to make risk assessment decisions on a debtors account balance.

[Firm #4]

The tool was used to perform risk assessment based on the data at hand and to help identify risks and support the audit team's conclusion on their risk decisions.

[Firm #4]

The workflow starts with a risk assessment. Following this, the tool presents tailoring questions and more specific risk questions. The tool then guides the audit team in considering information such as the account churn and the aging of debtors. This information can help the audit team to fill in the risk assessment questionnaire.

[Firm #4]

One firm uses a data analysis tool to identify risks relating to debtors and to design and execute related audit procedures

The firm notes that this data analysis tool is an interactive automated tool that uses the debtor sub-ledger listings of open items and master files to support understanding the business, identifying and understanding significant classes of transactions, identify risk and design and executing audit procedures.

[Firm #2]

Appendix 2

Examples – Data analytics across audit areas

Regression analysis

One firm has a regression analysis data analysis tool which was developed by the firm's global network.

The tool is used for balances where there is a reliable predictor or relationship that can be used as a predicting factor.

[Firm #4]

Audit teams disaggregate data, set appropriate expectations of the movement and set sufficiently precise thresholds to allow for meaningful analysis. The tool highlights outliers, allowing the firm to focus their testing on these outliers.

[Firm #4]

The firm noted that this tool is most commonly used for revenue or cost of sales testing. The tool typically uses a minimum of the prior two years' data to predict the current year revenue.

[Firm #4]

Appendix 2

Examples – Data analytics across audit areas

Other areas

Three firms have reported the use of data analytics in other areas.

[Firm #2, #3, #5]

One firm noted that data analytics are used in areas such as consolidation, custodian reconciliations, financial model reviews, impairment testing, sensitivity analysis and valuation of certain types of funds.

[Firm #3]

One firm reported the use of data analysis tools to organise and present data in determining group audit scoping strategy and to perform interim analytical review procedures.

[Firm #2]



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