

March 2020

DISCUSSION:

Technological resources: using
technology to enhance audit quality

TECHNOLOGICAL RESOURCES: USING TECHNOLOGY TO ENHANCE AUDIT QUALITY

Introduction

1. Technology driven innovation in the audit market has been the subject of significant investment for a number of years, and is increasingly the focus of dialogue between regulators, standard setters and audit practitioners. Investments have been made to build internal assets, resources and tools, as well as in developing relationships with third-party providers. A key challenge is to ensure that auditing standards remain fit for purpose, setting objectives and requirements for auditors which are designed to ensure consistent delivery of high-quality audits, whilst allowing for innovation and deployment of increasingly sophisticated technological resources. This applies to all types of audit, although investment initially focused on the larger end of the market.
2. The IAASB has revised ISA 315 *Identifying and Assessing the Risks of Material Misstatement* partly in response to the evolving business environment and the IT systems, processes and controls typically found in audited entities. Revisions to the standard also take account of the increasing use of automated tools and techniques by some auditors. Nothing mandates the use of these tools, reflecting that there are different ways that procedures may be carried out, but specific application material has been added to give examples of where and how they may be used. The FRC is currently consulting on adoption of the standard in the UK.
3. Nevertheless, despite the changes that have already been made to ISA 315, the FRC continues to consider the implications of developments in technology. In addition to ongoing outreach and dialogue with auditors, audited entities and technology providers, we have noted the findings of several recent reviews and wish to seek the views of stakeholders about some of the potential issues which arise. Our objective is to identify practical steps we can take as the UK's audit regulator to enhance relevant standards and/or guidance, as well as generate insight which will influence our engagement with international standard setters.

Technology related reviews of the audit market

4. In January 2017 the FRC's AQR team published a thematic review of *The Use of Data Analytics in the Audit of Financial Statements*. This report concluded that new technologies were having an impact on the way audits were being conducted, but that this was largely limited to risk assessment processes rather than more detailed testing or evaluation of results. The narrow focus of the 2017 review reflected the predominance of data analytic software tools at that time, giving less prevalence to the more sophisticated technologies which we have increasingly observed audit firms utilising since then. These include machine learning, artificial intelligence and natural language processing, alongside even more sophisticated data extraction and analysis technologies.
5. In March 2020 a follow up report was published by AQR, with a broader focus on *The Use of Technology in the Audit of Financial Statements*. This report highlighted

enhanced audit quality as being a likely outcome of widespread use of technological resources, but also identified some additional challenges including the increasing involvement of third-party providers and tools in the audit process, particularly in the area of data extraction.

6. In December 2019 Sir Donald Brydon's report *Assess, Assure and Inform: Improving Audit Quality and Effectiveness* was published, which included observations and recommendations relating to the use of technology in audits. Similar to AQR, Brydon was interested in the possibilities for enhanced audit quality and focussed on issues relating to data and data extraction. The report identified four obstacles to the further widespread use of technological resources and suggested that BEIS and FRC/ARGA *should work with auditors to create necessary protections and policies for auditor to be able to use data from the companies they are auditing*. The obstacles he identified were:
 - The availability of data in a useable form;
 - The willingness of companies to allow access to all of their data;
 - The need to assure data extraction tools; and
 - The need to assure algorithms used in analysing data.
7. In late 2018 and early 2019 the Competition and Markets Authority (CMA) carried out a study into the statutory audit market. This included discussion of the gap (real and perceived) between the larger and challenger firms in terms of investment into and use of technology. Although there were no specific recommendations, the use of technology resources was recognised as a potential quality differentiator between audit firms, and also a potential obstacle to greater competition because of the levels of investment that may be required. One of the ways in which some challenger firms have sought to close the gap has been through deeper relationships with third party technology suppliers. We consider some of the potential implications of these relationships in the consultation questions below.

Key Areas of Focus

8. The main areas of focus for this paper and which have been raised with the FRC are:
 - Areas where technological resources are enhancing audit quality, and potential obstacles to further innovation (including those arising from regulation and standards);
 - The increasing use of artificial intelligence, machine learning and natural language processing within the audit process;
 - Data Standards and Extraction Issues;
 - Audit Documentation;
 - Data analytic exceptions; and
 - The growing use of third-party technology providers.
9. We would, of course, welcome comments on other areas related to audit quality and technology other than those identified in this paper.

Technological innovation and audit quality

10. Both the Brydon review and the latest AQR thematic posit a link between enhanced audit quality and the increasing use of technology. This goes beyond efficiency gains from process automation and relates, in part, to the larger volume of data and evidence which can be extracted from an audited entity and the sophistication of the tools available to interrogate it. At the same time, Brydon raised concerns about the ability of challenger firms to keep pace with the Big Four firms in the deployment of innovative new technology.
11. Brydon also stressed the need for auditors to be trained to develop and retain a sufficient level of technological literacy in order to understand the benefits – and limitations – of the solutions they are deploying.

Question 1: Do you agree that the increasing use of technological resources, including AI and other advanced tools, enhances the quality of audits, beyond the benefits derived from efficiency gains. If so, what are the indicators of enhanced quality?

Question 2: Do you believe that challenger firms are currently at a disadvantage in the use of new technology? If so, what remedies would you suggest?

Question 3: Other than investment, what do you believe are the key challenges auditors face in the increasing utilisation of automated tools and techniques within the audit process? Again, what remedies would you suggest to overcome these challenges?

Question 4: Does the current assurance model or the auditing standards represent an obstacle to technological innovation? If yes, then what specific standards, objectives, requirements or guidance cause practitioners particular difficulties?

Question 5: Do you believe the current level of training given to auditors – both trainees and experienced staff – is sufficient to allow them to understand and deploy the technological resources being made available?

Artificial Intelligence, Machine Learning and Natural Language Processing

12. The 2020 AQR thematic report highlights the increasing use of technologies such as Artificial Intelligence (AI), Machine Learning and Natural Language Processing (NLP) in the audit process. This is presently focused more on the assessment of risk but with some deployment of machine learning in, for example, working paper population. Here an algorithm learns which particular elements an auditor wishes to extract from underlying populations, such as detailed contracts, and generates a working paper for consideration by the auditor. However, indicators are that

these technologies will become more pervasive throughout the audit process as a whole.

13. These technologies have the potential to greatly enhance audit quality, but at the same time may represent a challenge for auditors when they seek to demonstrate their compliance with auditing and ethical standards. Standards require the auditor to gain sufficient, appropriate audit evidence in support of their audit work and to assess whether the source of that evidence is appropriate. In the case of AI, for example, algorithms can continually iterate and 'learn' relatively free from human intervention. That may mean that a source of evidence that the auditor has determined to be sufficient and appropriate, may change in a way that requires continual reassessment. From an ethical perspective, the increased use of technology may result in the auditor inadvertently providing services which have implications for the auditor's independence and objectivity. The International Ethics Standards Board for Accountants (IESBA) is gathering information to support its own consideration of the issues that will need to be addressed.
14. One potential solution may be to allow algorithms to learn to a certain point and then, once sophisticated enough to perform the operation for which they are intended, prevent them from learning any further. In this way, the auditor has a clear understanding of which iteration of the algorithm is being deployed. The algorithm can then be further developed with the auditor having greater control over any future iteration.
15. Currently, the design and integration of these tools into a firm's audit methodology is most frequently conducted by a central team with specialised knowledge. This mitigates against the risk of 'homebrew' software solutions where individual teams amend or revise standard algorithms. Whilst it is important that firms operate in an environment where they are able to innovate, this must be within a proper governance framework – a proliferation of untested, or poorly tested tools will not address the objective of using data more widely to support enhanced audit quality.
16. Brydon reported that some users of assurance are themselves deploying new technologies to analyse and collect information from auditor's reports. This has the potential to influence the content of auditor communications to ensure that key information – for example in respect of key audit matters, scope, materiality, the use of auditor scepticism, going concern or fraud – is made clear.

Question 6: What firm-wide controls do you believe are appropriate to ensure that new technology is deployed appropriately and consistently with the requirements of the auditing standards, and provides high quality assurance which the firm can assure and replicate more widely?

Question 7: Are you aware of the use of new technologies in analysing and interpreting information provided by auditors – including, for example, auditor's reports? If yes, then do you foresee implications for the form and content of auditor's reports?

Question 8: What do you see as being the main ethical implications arising from the greater use of technology and analytics in an audit?

Data Standards and Extraction issues

17. As the use of data grows, auditors are handling ever greater volumes of information. However, there is little standardisation in the way in which data is made available to auditors. We are aware of examples where auditors work with a data set provided by an audited entity, and others where the auditor has access to live data and systems can apply chosen analytics in a live environment. Given the greater sensitivity over data handling since GDPR came into force, audited entities may become increasingly reluctant to provide unlimited access to their data, to run analytics in a live environment, or install the auditor's proprietary applications into their systems.
18. This was an issue identified in the Brydon report with specific concerns raised over:
- Whether limitations in the data auditors have access to would have an impact on audit quality;
 - The potential for auditors to benefit commercially from the data they access – whether through cross-selling services, or when used anonymously to build the capacity of internal machine learning tools;
 - Potential threats to independence where audited entities come to rely on enhanced auditor 'insights' rather than build their own analytic capabilities.
19. In respect of data quality, Brydon suggested that the UK might 'consider stimulating' the development of a common data standard. The American Institute of Certified Public Accountants (AICPA) has developed a series of voluntary data standards that identify the key information needed for audit and provide a common framework covering: data file definitions and technical specifications; data field definitions and technical specifications; and supplemental questions and data validation routines to help auditors better understand the data and assess its completeness and integrity.
20. The AICPA standards are comprehensive and provide a framework for adopting a common approach regardless of the accounting system that an entity is using. In the absence of an international standard, we are interested whether stakeholders agree there would be merit in developing a similar standard for the UK. Such a standard could, for example, be scoped to focus more narrowly than the AICPA standards, and to focus only on critical fields in an accounting system rather than all fields, as a way of developing a manageable pathfinder and testing the concept before it is developed further.

Question 9: Do you believe there is value in the UK having consistent data standards to support high quality audit, similar to that developed in the US?

Question 10: Do you agree that threats to auditor independence may arise through the provision of wider business insights (not as part of the audit itself) drawn from the interrogation company data? If so, what measures would mitigate this risk from crystallising?

Audit documentation

21. A reviewer should be able, on reading an audit file, to understand the nature, timing and extent of the audit procedures performed; the results of the procedures; the evidence obtained; significant matters arising; conclusions reached; and, the significant professional judgements made in reaching those conclusions.
22. Some practitioners have identified areas where the use of technological resources creates new challenges for auditors trying to document their compliance with auditing standards. For example, documenting version control over AI algorithms, data extraction and reconciliation or data analytics tools, so that a reviewer can understand the tools being utilised to obtain the audit evidence a specific point in time.
23. Question marks may also arise about:
 - Retention periods, particularly when large volumes of data have been collected and stored to support testing on the audit file;
 - The extent of the documentation required to demonstrate the development and testing of tools to be rolled out for wider adoption by audit teams including the tool's certification of use by a central team, justification for its use in specific testing; key analysis and discussions of exceptions generated by the tool.
 - How the Responsible Individual (RI), who is ultimately responsible for the auditor's opinion, demonstrates their understanding of the technological tools deployed in the audit.

Question 11: Do you agree that audit documentation can be more challenging when an audit has been conducted with automated tools and techniques? If so, please identify specific areas where is a problem.

Data analytic exceptions

24. Data analytic procedures can result in the identification of significant numbers of exceptions. This could mean issues exist within the population examined which warrant further investigation or, that the parameters for the procedure were not appropriately calibrated and need to be adjusted in order to be effective.
25. There has been debate about how this greater volume of exceptions should be addressed as part of an audit. Internationally, this has been recognised through the use of the terms 'outliers' and 'notable items' as a way of distinguishing between the outcome of an iterative procedure which requires further refinement,

and items that are of genuine interest to the auditor. Firms have taken a number of approaches to dealing with this issue, but no single solution appears to have emerged.

26. Whichever approach is taken and justified, a key area going forward will be the training and development of audit staff to ensure they have the knowledge and skillset required to deal with these exceptions. This will require a robust understanding of the tool being used, and of the criteria and parameters being applied. The FRC is keen to understand how auditors have addressed this issue, and whether additional guidance, dealing with approaches to data analytic procedures and exceptions generated, would be valuable.

Question 12: Have you encountered challenges in dealing with the volume of 'exceptions' arising from the use of more complex or comprehensive data analytic procedures?

Use of third-party technology providers

27. There are a number of third-party vendors and service providers active in the area of technological resources, looking to sell their services to audit firms to assist with their audit work. Over the years audit firms have used a variety of automated third-party workflows, electronic methodology support tools and coding tools. However, third parties offering a service to assist with audit work, rather than simply supporting its execution, is new. Alongside this comes the potential for such third parties to liaise directly with audited entities in relation to the logistics of obtaining audit evidence. Third parties hence form part of the audit evidence feedback loop and, with appropriate permissions, can make use of information gained through the audit process to refine their own benchmarking tools and algorithms.
28. There are a range of opportunities and risks related to this development, including:
- Helping challenger firms close the gap to Big Four firms in terms of technological capacity;
 - A market driven 'solution' to issues of data quality and consistency, as third-party vendors become a bridge between audit entity data and the audit firms;
 - The ability of third-party vendors to provide separate 'insight' consultancy services to audited entities – which brings with it issues around auditor independence (including management risk) and transparency about who benefits commercially from such services;
 - How auditors can assess and evaluate the independence and expertise of third-party providers, and document that assessment in line with the audit quality control standards;
 - The extent to which audit firms remain able to evaluate and document their assessment of specific algorithms or tools where these have not been developed in house.

Question 13: Do you agree that the use of third-party technology vendors raises potential ethical challenges for auditors and, if so, which potential safeguards would you see as effective in reducing this threat to an acceptable level?

Question 14: Do you agree that the increasing usage of third-party providers presents challenges in audit documentation and, where relevant, how have you dealt with this?

Conclusion

29. Technology is having a major impact on the way in which audit is delivered and offers a way of enhancing audit quality where used effectively. We recognise that as the UK audit regulator, that we have a role to set clear expectations as to how technology can be used. Responses received in response to this discussion paper will be used to inform the FRC's audit policy work programme, and also our engagement with international standard setters.
30. We welcome responses from all stakeholders. Comments should be sent to Jason Bradley at AAT@frc.org.uk by 5pm on Friday 3rd of July. In responding, it is not necessary to provide comments in respect of every question.

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