

**Meeting:** IAASB  
**Meeting Location:** New York, NY  
**Meeting Dates:** June 21–24, 2016

## Agenda Item **8-A**

### **The IAASB’s Work to Explore the Growing Use of Technology in the Audit, including Data Analytics**

*This publication has been prepared by the Data Analytics Working Group (DAWG), informed by the International Auditing and Assurance Standards Board’s (IAASB’s) discussions to date. It does not constitute an authoritative pronouncement of the IAASB, nor does it amend, extend or override the International Standards on Auditing (ISAs).*

***The IAASB established the DAWG to inform the IAASB as to how and when to respond to the developments in technology most effectively in the public interest. The purpose of this publication is to inform stakeholders about the IAASB’s ongoing work to explore effective and appropriate use of technology, including data analytics, in the audit of financial statements. This publication provides insights into the opportunities and challenges with the use of data analytics in the audit and outlines the insights gained from the DAWG’s activities to date. The IAASB is always interested in the views of its stakeholders.***

***The DAWG welcomes stakeholder perspectives on whether all of the considerations relevant to the use of technology and data analytics in a financial statement audit have been identified. Please see page 12 of this publication for more information on how stakeholders can provide perspectives and input.***

#### **Why are we taking notice of data analytics in the audit?**

Auditors play a key role in contributing to the credibility of the financial statements on which they are reporting. High-quality audits support financial stability. As the global auditing standard setter, the IAASB has a public interest responsibility to develop standards and guidance for auditors to facilitate high-quality audits being achieved – which in turn builds public trust and confidence in financial statements and corporate financial reporting more broadly.

In the history of the audit profession, there have been shifts in how the audit is executed. These shifts have been a result of transformations in the environment in which companies operate, and in which audits are performed. Prior to the current risk based audit approach, as a result of far less complexity in the environment in which companies operated, the audit was carried out in a largely manual way with a relatively high proportion of the financial information underlying the financial statements being tested without any significant emphasis on information subject to higher risk of misstatement.

Over time, due to increased complexity, higher volumes of data, regulation stimulated by highly public failures of companies and technology limitations, the risk-based audit approach has evolved, focused on

areas of higher risk, with greater emphasis on obtaining audit evidence from the auditor’s testing of controls established by an entity.

Technological change is occurring at a rapid pace, ushering in the capability to capture and communicate data digitally, on an unprecedented scale and almost instantaneously. This has resulted in increasing focus on data, whether structured or unstructured, and whether generated internally or externally to the entity. Comprehensive and powerful digital information systems are increasingly capable of handling, analyzing, communicating and responding to these data related changes. Companies are rapidly changing their business models in innovative ways in response to these developments.

Stakeholder expectations regarding the use of technology in the audit of financial statements are evolving. Developments in technology, both within the financial reporting systems used to initiate, process, record and store data representing the information in the financial statements, and the tools and techniques available to analyze that data, are resulting in questions from stakeholders regarding the continued effectiveness of the current risk based audit model. In a number of jurisdictions, particularly those that are now subject to mandatory auditor rotation where proposals and re-proposals for audit are now more common, entities are expecting the auditor to perform, at least partially, an audit that includes the increased use of technology, particularly data analytics.

### **Data analytics and the financial statement audit**

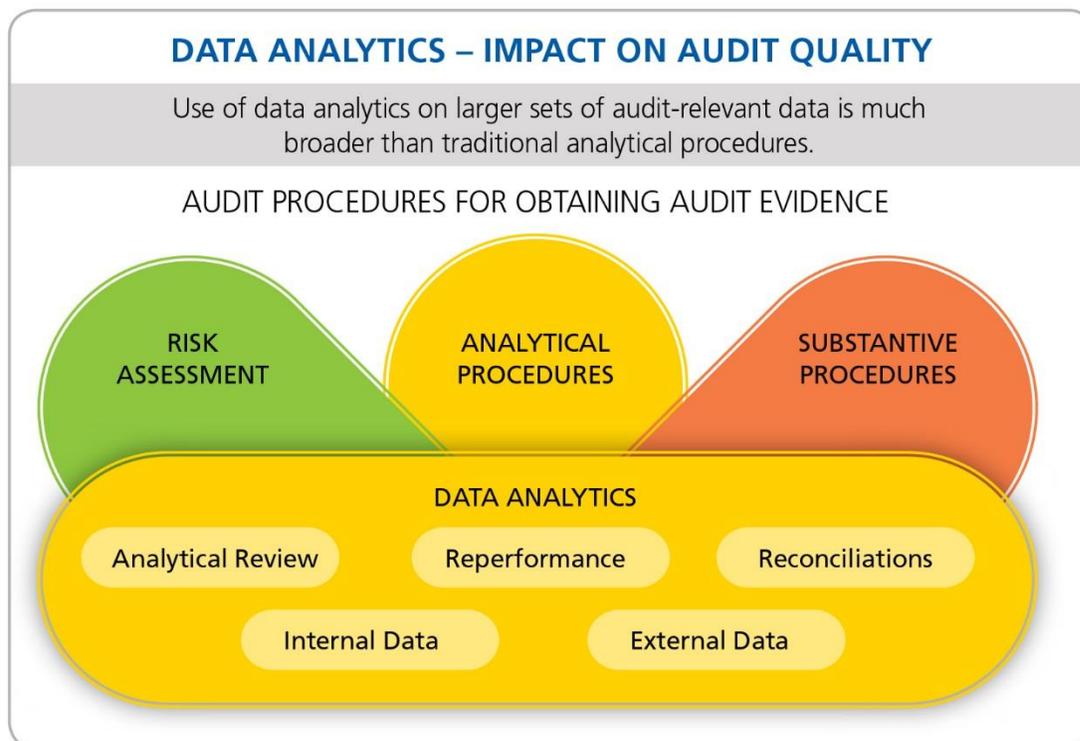
Data analytics, when used to obtain audit evidence in a financial statement audit, is the science and art of discovering and analyzing patterns, deviations and inconsistencies, and extracting other useful information in the data underlying or related to the subject matter of an audit through analysis, modeling and visualization for the purpose of planning or performing the audit.<sup>1</sup>

The quality of a financial statement audit can be enhanced by the use of data analytics. Professional skepticism and professional judgment rely heavily on a robust understanding of the entity and its environment. In the increasingly complex and high-volume data environment, the use of technology and data analytics offers opportunities for the auditor to obtain that understanding effectively. Other benefits of the use of data analytics include: [Second and third sentence in this paragraph an opportunity for a pull-out quote].

- Better informed risk assessment and response, enabling an enhanced understanding of the entity and its environment and further improving the quality of the auditor’s risk assessment.
- Enhancing the auditor’s ability to gather audit evidence from the analysis of larger populations, including enabling better risk based selections from those populations for testing by the auditor.
- Broader and deeper auditor insight of the entity and its environment provide the entity being audited with additional valuable information to inform its own risk assessment and business operations.

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<sup>1</sup> This definition of data analytics is based largely on a definition used in an American Institute of Certified Public Accountants (AICPA) publication titled [Audit Analytics and Continuous Audit, Looking Toward the Future](#).



While the benefits are clear, there are also limitations auditors need to be aware of. For example:

- Auditor's need to have a clear understanding of what they are looking at when using data analytics, including understanding that the auditor is performing the analysis of appropriate (audit relevant) data. Analysis of data that is not relevant to the audit, not well controlled or is unreliable or the source of which (internal or external) is not well understood could have negative consequences to audit quality. While this data is able to provide valuable insights to the auditor, it will not provide everything the auditor needs to know.
- Being able to test 100% of a population does not imply that the auditor is able to provide something more than a reasonable assurance opinion. [This paragraph an opportunity for a pull-out quote].
- In the financial statements of the majority of entities there are significant aspects of the amounts and disclosures that are estimates and require judgment in assessing the reasonableness of the entity's estimated value for those items. While technology of today is able to unlock valuable insights for the auditor to consider, the human element, particularly professional judgment, cannot yet be replaced.
- The effective use of technology is able to support the auditor in obtaining sufficient and appropriate audit evidence. However, caution should be exercised regarding the auditor's and stakeholders "overconfidence" in technology when auditors lacking a clear understanding of the uses and limitations of technology falsely believe the results to be infallible (i.e., the output must be 100% accurate because a software program produced it).

### Technology and the ISAs – The Present and The Possibilities

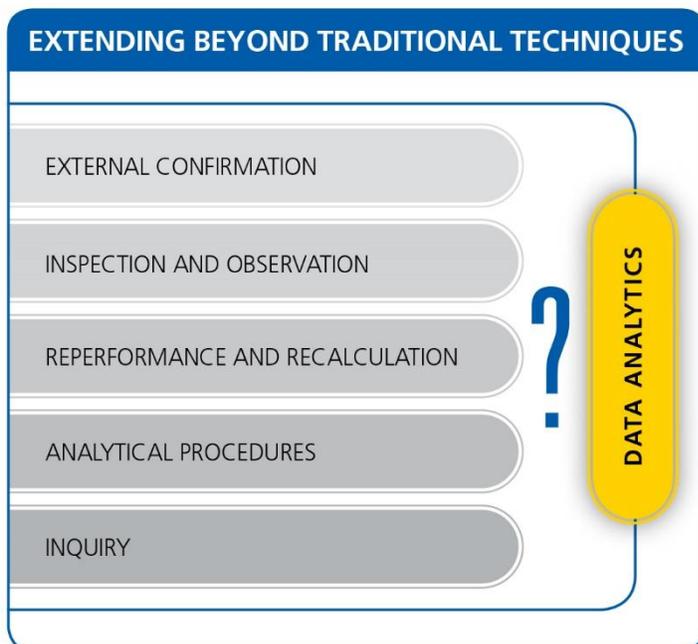
The ISAs do not prohibit the use of – nor do they stimulate the use of – data analytics. [First sentence in this paragraph an opportunity for a pull-out quote]. Technological advancements and the increasing

relevance and use by businesses of data analysis in decision making are causing the IAASB and its stakeholders to evaluate whether the ISAs will continue to meet the needs of those who rely on the auditor's report in a fast paced digital world. The ISAs acknowledge the use of technology by the auditor in executing the audit, through use of Computer Assisted Audit Techniques (CAATs), which is a subset of data analytics. Where CAATs are able to assist the auditor in analyzing a specific aspect of an element of the financial statements (e.g., analyzing a system generated inventory / stock ageing report), data analytics is both broader and deeper, and can in addition, for example, provide insight into how inventory interacts with other elements of the financial statements.

The ISAs need to continue to be robust and reflect current practice in order to remain relevant in a fast developing environment. At the same time, the ISAs need to be sufficiently flexible to drive appropriate auditor performance regardless of the circumstances (i.e., keeping to principles rather than specifics tied to current practice). Of particular relevance to an audit are technological developments resulting in more powerful data analysis tools and techniques. These data analysis tools and techniques provide the auditor, in an environment of increasing complexity and large populations of audit relevant data, with enhanced capabilities to more effectively and efficiently understand the entity and its environment. However, auditors find challenges in fitting the audit evidence derived from data analytics into the current audit evidence model within the ISAs. For example, auditors are considering whether analysis of client entity data across 100% of the population provides only risk assessment information or whether it also provides substantive audit evidence. Auditors are also considering how a risk assessment that considers 100% of the data in a population may reduce the amount of substantive or control evidence needed.

### Why all the discussion? Why not just move forward with making changes to the ISAs?

Technological advancements and data analytics developments challenge everyone and giving serious consideration to the possibilities requires vision. The ISAs were written in a completely different technological era. Some view the current environment as an opportunity to think again about what the audit could – or perhaps – should be, including exploring whether there is a need to possibly start with a blank sheet of paper as retrofit is likely not an effective way to incorporate these techniques.



The ISAs do not prohibit the use of data analytics techniques. The lack of reference to data analytics beyond traditional CAATs in the ISAs may be viewed as a barrier to their adoption more broadly. This is a result of the view that gathering information from the use of data analytics does not reduce the existing required procedures in the ISAs, even if those required procedures now appear redundant as a result of the information gained from use of data analytics.

In a regulatory environment where auditors are being innovative with the use of developments in technology to enhance audit quality and the effectiveness and

efficiency<sup>2</sup> of their audits, they are having to be courageous in new ways of auditing without the support of the auditing literature. In some jurisdictions, increased use of technology and data in the audit are being demanded by the marketplace. Investors too have noted that while the auditing standards are not broken, they need to reflect current practices and developments in order to remain relevant and meet investor expectations of the effective use of technology by the auditor to deliver high quality audits. This is a challenge both for auditors, including audit firms, and audit oversight bodies that regulate their work. Should the ISAs specifically acknowledge audit evidence from data analytics? Auditors, audit oversight bodies, standard setters and other stakeholders, need to work together in addressing developments occurring in technology. [Last sentence in this paragraph an opportunity for a pull-out quote].

There are likely opportunities for the ISAs to be revised to address technological advances and data analytics. Auditors and audit oversight bodies are looking to standard setters, such as the IAASB, to act in this area. Auditing standards should enhance audit quality and also be able to accommodate developments (such as technology developments) that occur in the future such that they are not in a continuous state of change. While significant technological developments have occurred to date, including in the area of data analytics, further development and analysis (such as academic research) is anticipated in the near future.

### **Optimism – But There are Still Unanswered Questions**

There are a number of circumstances and factors that exist in the current business environment that impact the use of data analytics in a financial statement audit. These circumstances and factors include:

- (a) **Data acquisition** – including challenges with access to the large data sets that are needed to effectively execute data analytics. In most instances, the entity's data needs to be transferred to the auditor, and in addition to concerns related to data security and privacy, having sufficient infrastructure to store and then process data analytics tools on the data can be challenging due to the size and volume of data.
- (b) **Conceptual challenges** – when performing an audit that involves data analytics, the audit team is requesting information from the entity and asking questions that have not been asked in the past. The approach to certain areas of the audit where data analytics is utilized is also quite different to what the entity may be used to seeing, and the entity may be hesitant to provide all of the information being requested.
- (c) **Legal and regulatory challenges** – these include concerns regarding data security and privacy, but also jurisdictional law and regulation that in some cases prohibit data from leaving the jurisdiction within which the entity is located. This can be particularly challenging when the auditor needs to transfer the data to IT facilities that may be located outside of the respective jurisdiction.
- (d) **Resource availability** – a model that may be used by auditors utilizing data analytics in the audit is skilled centralized resources supporting engagement teams. These skilled centralized resources are often data scientists and as the extent of use of data analytics in the audit grows, strain is put on the resources currently available.

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<sup>2</sup> Improving the efficiency of the audit allows the auditor to shift time away from lower risk areas of the audit to the higher risk (and more judgmental) areas of the audit.

- (e) **How do regulators and audit oversight bodies maintain oversight** in a rapidly changing area when they have little experience themselves when the auditor makes use of data analytics and other technology innovations?

*Challenges in a financial statement audit*

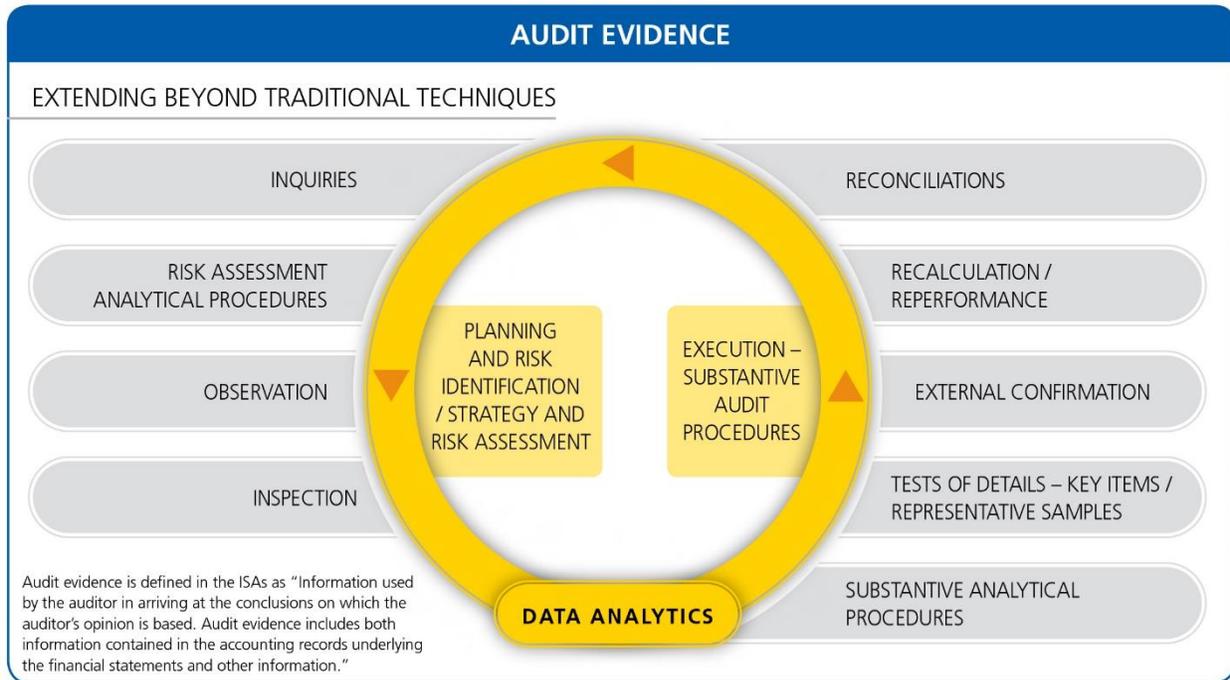
In the context of the environmental factors and circumstances noted above, the following are challenges encountered by auditors when making use of data analytics in a financial statement audit which may be considered as affecting audit standard setting.

- (a) **General Information Technology (IT) Controls** – data analysis triggers more questions regarding general IT controls and exceptions identified in the controls in the IT environment. Questions and challenges arise regarding what the minimum level of general ITG controls testing and the impact of the results of that testing should be when the auditor is using data analytics in the audit.
- (b) **Independent validation of data** when majority of data utilized is internal. The ISAs require the auditor to establish the accuracy and reliability of information used in performing audit procedures. In an audit using data analytics, where much or the majority of the data utilized is internally generated, what should the auditor be expected to perform to validate the reliability of the data? Considering the nature of the data being utilized, the ISAs could be expanded upon to provide greater specificity and guidance to auditors.
- (c) **Validation of appropriateness and reliability of external data**. The auditor should not assume that data from third party sources is complete and accurate. External data obtained from third party data providers may only be an aggregation of data obtained from multiple sources and may not have been subject to procedures to validate completeness, accuracy and reliability of data that is needed in an external audit context. The question for standard setters becomes, what procedures does the auditor reasonably need to perform to validate completeness, accuracy and reliability of externally obtained data? How is this different from the extant premise in the ISA that information obtained / validated by a third party provides audit evidence or corroborating audit evidence? This is an area that is also being considered by the ISA 540<sup>3</sup> Task Force.

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<sup>3</sup> ISA 540, *Auditing Accounting Estimates, Including Fair Value Accounting Estimates, and Related Disclosures*

- (d) **What is the nature of the audit evidence** obtained via data analytics when used as a **risk assessment** procedure but also yielding audit evidence (i.e., more than a risk assessment procedure but not meeting current requirements to be considered a substantive analytical procedure)?



- (e) **What is the nature of the audit evidence** obtained via data analytics in **responding to risks** identified? The structure of the ISAs requires an identification of risk of material misstatement and a response to the assessed risks. The use of data analytics does not remove that model but changes the way it is implemented – such that risk identification and response occurs in one step rather than a specific outcome of two separate activities. How does the auditor document how the objective of the ISAs was met based on the current ISA requirements?
- (f) **What is an appropriate level of work effort for exceptions identified?** Under the current risk based audit approach, exceptions identified from sampling populations for testing are extrapolated to estimate the impact on the financial statements as a whole. With data analytics, and the ability in certain cases to cover a significantly larger portion of the population and the auditor is able to determine the worst possible case of the error, how much additional corroboration is required before a conclusion can be reached?
- (g) **In the current risk and response nature of the ISAs**, how does an engagement team classify data analytics incorporated in the audit? Is the difference between tests of controls and substantive procedures relevant in an audit using data analytics? Should the sometimes iterative nature of data analytics be reflected in the ISAs? Or is there perhaps a third type of audit evidence, being from data analytics?
- (h) **Risk measurement** – what does the implication of being able to measure risk precisely have on the audit? When the auditor has been able to analyze all transactions in a particular area of the audit for the entire period under audit, what does the auditor need to do to demonstrate / corroborate that unexpected transactions have been adequately addressed in the audit? What is the role of controls testing when auditors analyze 100% of the transactions in a particular area of the audit?

- (i) **Challenges in applying the documentation requirements when applying data analytics.** The ISAs do not currently require the auditor to retain all of the information used by the auditor in selecting items to test, but require the auditor to document the identifying characteristics of the specific items or matter tested. The documentation requirements need not be any different when making use of data analytics. However there are challenges on how the documentation requirements are applied when using data analytics based on the iterative nature of the process to reach a conclusion. Does the audit team need to include all of the data and details of all of the routines that have been executed in the audit documentation? What is the auditor's responsibility to retain data used in the performance of data analytics but that is not directly audit evidence on which the auditor has based conclusions?
- (j) **The importance of auditors establishing quality control** processes over the development of data analytics used in an audit – whether this is at the firm level for firm-wide techniques or at the engagement level for custom built analysis. If an auditor makes use of third party developed data analytics software, what is the extent of validation of the design of the software by the auditor and the level of understanding over the development of those products?

### **Considerations specific to auditors who perform audits of Small and Medium Entities (SMEs)**

Developments in higher end technology solutions, that previously may have been out of reach for SMEs, are now more attainable when the technological expertise are maintained by a reputable third party service provider (for instance, in cloud computing environments). SMEs that are using advanced technology to operate their businesses and record their financial transactions will have an expectation that their auditor would be making effective use of technology as well.

In many respects, there are likely to be some advantages for those auditors that audit SMEs over auditors that audit large entities in using data analytics in the audit. SMEs are more likely to make use of standard / off the shelf financial reporting applications that make access to data easier and potentially information of higher quality in relation to the size of the entity.

### **Considerations specific to Small- and Medium-Sized Practices (SMPs)**

Data analytics may be an area that many SMPs currently have limited knowledge or experience, but it has the potential to transform the existing audit model. Auditors who are unaware of the developments will be disadvantaged if they are not considering how data analytics could enhance audit quality and improve efficiency.

SMPs may have advantages over larger firms as they can be more nimble and move faster in making changes to audit approach or methodologies. While there may be technology and investment barriers for SMPs, there are vendors in the market place today offering data analytics solutions that SMPs are able to make effective use of.

### **Considerations specific to auditors who perform audits of Public Sector Entities**

In public sector entity environments, where the existence of homegrown systems are more prevalent based on the specific nature of the role of these entities, data capture could prove to be challenging and limiting with respect to applying data analytics in the financial statement audit.

Audits of public sector entities include the audit of the financial statements, but there are numerous other types of audits performed (such as performance audits) that lend themselves well to data analytics. This factor may offset some of the data capture challenges the auditor may encounter.

## The Standard–Setting Path Ahead

The use of data analytics in the audit of financial statements is at an early stage. Auditors are expanding the areas of use and audit regulators and oversight bodies are just beginning to see the impact of the use of data analytics in the audit through inspection activity. Academic studies of the role that data analytics can play in enhancing audit quality are also underway. Wholesale change to the ISAs at this time is likely to have unintended consequences due to the fast paced nature of the developments with data analytics in the audit of financial statements.

The IAASB currently has a number of ongoing projects, as detailed in its [Work Plan for 2015-2016](#). The DAWG anticipates active involvement in some of these ongoing projects to contribute to the further progress of those projects, including where the standards likely to be impacted by those projects might make reference to or include language related to data analytics. Such active involvement would include sharing the DAWG's findings with the other task forces and working groups, as well as further informing the DAWG on matters related to data analytics and the ISAs. The following are the projects under review by the IAASB where data analytics can have a role.

### *Professional Skepticism*

Adopting and applying a skeptical mindset is a personal and professional responsibility for every auditor. The application of professional skepticism is influenced by personal traits, including fortitude (i.e., the strength of mind that enables the auditor to deal with matters arising during the course of the audit with courage), and the auditor's competence (e.g., knowledge, skills and experience).

The use of data analytics in an audit of financial statements will not replace the need for professional judgement and professional skepticism. Strong views have been expressed by the IAASB Consultative Advisory Group and at IAASB roundtables<sup>4</sup> about the importance of the auditor having a thorough understanding of the entity and its environment in order to facilitate a high-quality audit in which professional skepticism is appropriately applied.

The ability of the auditor to analyze data underlying the financial information represented in the financial statements enables the auditor to make inquiries of entity personnel with a deeper understanding of what has actually occurred in the financial reporting system. This provides the auditor with more granular information to assess the nature of the response to inquiries of entity personnel and have a more robust basis against which to assess the response and if necessary, challenge the response.

### *ISA 315 (Revised)*

Risk assessment, including the identification of the risks of material misstatement, is fundamental to the performance of an audit in accordance with the ISAs. Data analytics enables auditors to improve the risk assessment process. The ability to analyze large populations can enable the auditor to determine and assess the areas of audit risk quicker in the audit process. In early 2016, the IAASB established a separate working group to conduct the initial work related to possible revisions to ISA 315 (Revised). As the ISA 315 (Revised) working group begins its discussions, the DAWG will coordinate its activities with that working group, with the direct involvement of the DAWG in the ISA 315 (Revised) project.

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<sup>4</sup> IAASB roundtables conducted in connection with the IAASB's Invitation to Comment—*Enhancing Audit Quality in the Public Interest: A Focus on Professional Skepticism, Quality Control and Group Audits*

### *Quality Control*

The IAASB's quality control project is exploring – among other matters – the potential effects that auditors' changing business models and structures have on audit quality. In conducting audits, some auditors use Audit Delivery Models (ADMs) that are different to the traditional engagement team structures. These ADMs are having an effect on the traditional audit staffing model, with certain specialized expertise being centralized and supporting numerous audit teams. These ADMs will need to also consider the increased use of technology in executing the audit and how the specialized resources needed to enable these techniques are supervised and interact with the engagement teams they support.

The developments in the area of data analytics has benefited from the developments in technology more broadly. When using data analytics techniques in an audit, auditors will need to have appropriate controls and processes in place to be sure that the tool is doing what it is supposed to do and developments and changes to the tools are performed in a controlled manner. Audit firms have made use of technology to enhance efficiency of documentation, but now with tools to enable the performance of audit procedures to obtain audit evidence, the integrity of any software or application utilized in data analytics becomes increasingly important.

### *Group Audits*

Many audits today are audits of group financial statements (group audits). Group audits generally involve participation of component auditors<sup>5</sup> who perform work on financial information related to components that comprise the group. Audit risk in a group audit encompasses the possibility that a misstatement at the component level, or across components, is not detected, which might result in the group financial statements being materially misstated.

Data analytics can help in the following areas of a group audit:

- Scoping of the group audit – the ability of the group auditor to analyze data from parts of or from the whole group at a more granular level during the audit scoping, planning and risk assessment phase of the audit, enabling effective identification of areas of risk earlier in the audit process and facilitating a risk based response.
- For components that are not significant components – however a risk of material misstatement still exists, data analytics enables more effective audit work to be performed on those components or specific areas within those components.
- In some group audit environments, more of the audit procedures can be centralized and performed by the group auditor.

### *ISA 540<sup>6</sup>*

In December 2015 the IAASB approved<sup>7</sup> the commencement of a standard-setting project to revise ISA 540. Part of the ISA 540 project involves modernizing the standard to better address complex, system-generated accounting estimates such as may be common, for example, in the banking and insurance

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<sup>5</sup> A component auditor is an auditor who, at the request of the group engagement team, performs work on the financial information related to a component for the purpose of a group audit.

<sup>6</sup> ISA 540, *Auditing Accounting Estimates, Including Fair Value Accounting Estimates, and Related Disclosures*

<sup>7</sup> [Project proposal: Revision of ISA 540](#)

industries. Often, these estimates are influenced by large volumes of data, and the ISAs currently rely on the understanding of the estimate and the controls surrounding the systems that provide the data to develop the accounting estimate as part of the audit of the financial instrument. For example:

- Paragraph 8(c) of ISA 540 requires the auditor to obtain an understanding of how management makes the accounting estimates, and an understanding of the data on which they are based.
- Paragraph 8(c)(ii) of ISA 540 requires the auditor to obtain an understanding of the relevant controls around the accounting estimate.
- IAPN 1000<sup>8</sup> notes that controls are needed to ensure that data is completely and accurately picked up from external sources and from the entity's records and is not tampered with before or during the entity's use of such data.

Due to the large volumes of data that feed into information systems that are then used in models to develop the accounting estimate, use of new data analytics tools may be valuable in addressing audit risks associated with these data sources.

#### *Education – with linkages to the International Education Standards Board for Accountants*

The effective use of data analytics in the audit requires the participation of individuals with skillsets different than what the traditional auditor has at their disposal. Data analytics were not contemplated in the education curriculums of many of today's auditors. In the not too distant future, a re-skilling of a relatively large proportion of today's accountants and auditors will be necessary to realize the potential on a broad scale. Today, auditors are incorporating the needed skills by adding the use of the skills of data capture specialists and data scientists supporting the engagement teams.

#### *Other areas of impact to be assessed by the DAWG*

In addition to the areas noted above that are affected by the use of data analytics in the audit, as the DAWG's outreach continues and the use of data analytics in practice expands, the DAWG expects that there will be other areas of the ISAs impacted. These may include impacts to ISA 240,<sup>9</sup> ISA 330,<sup>10</sup> ISA 500<sup>11</sup> and ISA 520.<sup>12</sup> Specifically with respect to ISA 520, the DAWG is planning to perform an analysis of that standard and how data analytics might be incorporated into that standard.

#### **Next Steps**

This journey is evolutionary rather than revolutionary. The ISAs need to better address increasing complexity, taking into account the rapidly changing technological developments in both the business and audit environment. Our stakeholders and the public at large have high expectations of audit quality, and the role of auditors – and are looking for us to take action. However, the IAASB must be careful not to prematurely commence standard-setting related to data analytics, especially if doing so could have unintended consequences – such as restricting innovation.

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<sup>8</sup> International Auditing Practice Note (IAPN) 1000, *Special Considerations in Auditing Financial Instruments*

<sup>9</sup> ISA 240, *The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements*

<sup>10</sup> ISA 330, *The Auditor's Procedures in Response to Assessed Risks*

<sup>11</sup> ISA 500, *Audit Evidence*

<sup>12</sup> ISA 520, *Analytical Procedures*

The responsibility for performing quality audits of financial statements rests with auditors. However, audit quality is best achieved in an environment where there is support from, and appropriate interactions among, participants in the financial reporting supply chain. The IAASB is not the only organization that can influence audit quality. As the global auditing standard setter, we encourage cooperation and debate among regulators, policymakers, national auditing standard setters and other stakeholders.

The DAWG will continue:

- To explore and understand how the use of technology and more specifically, data analytics, is able to enhance audit quality (thus retaining the audit's place in the financial reporting chain and enhancing the reliability of the audit in an increasingly technology driven environment).
- To remain focused on evaluating whether and clearly articulating how innovations in technology enhance audit quality.
- Its dialogue with auditors of all sizes, regulators and audit oversight bodies, preparers, investors, those charged with governance and other relevant stakeholders in the external reporting supply chain, national auditing standard setters to further understand relevant issues and to leverage the work that has been done by others. This dialogue will also help the IAASB to understand how auditors are innovating to meet emerging public interest expectations.

It will be necessary for the IAASB to undertake a more detailed consideration of the relevant issues that have been identified in the context of emerging needs of users, including how the ISAs may be applied. The DAWG will be actively involved in the IAASB's current projects (specifically professional skepticism, ISA 315 (Revised), quality control, group audits and ISA 540) to contribute to the further progress of those projects, including where the standards likely to be impacted by those projects might make reference to or include language related to data analytics. The IAASB has an open mind as to the way forward.

### **Concluding Thoughts and Stakeholder Input**

The content of this publication represents the results of the DAWG's outreach to date. The DAWG's work in this area is not done. In addition to the matters addressed in this publication, the IAASB and the DAWG are considering questions such as:

- (a) Have we considered all circumstances and factors that exist in the current business environment that impact the use of data analytics in a financial statement audit?
- (b) Is our list of standard setting challenges accurate and complete?
- (c) Is the DAWG's planned involvement in the IAASB projects currently underway appropriate?
- (d) Other than the initiatives noted below, are there other initiatives that we are not currently aware of that could further inform the DAWG's work?

The IAASB and the DAWG are interested in views that readers may have on these questions or any others that we have not yet considered in relation to the use of data analytics in a financial statement audit. To provide your thoughts and perspectives, please email us at (insert email address).

## Additional Resources

Based on its outreach performed to date, the following initiatives have been identified relevant to the DAWG's work.

### *Rutgers<sup>13</sup> AICPA Data Analytics Research Initiative*

Established in December 2015, the [Rutgers AICPA Data Analytics Research Initiative](#) will undertake research projects that will focus on the potential for further integration of analytics into the audit process at a foundational level, in an effort to enhance audit quality. The scope of the research will encompass the testing of theory and methodology to inform the development of professional guidance on the application of audit data analytics.

### *Institute of Chartered Accountants of England and Wales (ICAEW)*

Initially through a series of articles, the ICAEW is [engaging in a dialogue with its members](#) regarding the topic of data analytics. The first publication in a series of expected publications is titled 'Data Analytics: International Auditing Perspectives', and explores data analytics in the audit, covering topics such as:

- What data analytics can do and how they contribute to audit quality
- Routines, tools and solutions: technical challenges
- Work in progress and looking forward

The ICAEW's objectives through this series of papers is to facilitate a dialogue among auditors and audit regulators and generally raise the level of awareness (particularly with audit committee members) with respect to the use of data analytics in the audit.

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This document was prepared by the Data Analytics Working Group of the International Auditing and Assurance Standards Board (IAASB).

For more information and updates on the project, visit the IAASB's project page at <http://www.iaasb.org/projects/data-analytics>.

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