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Our ref MC/288  
Contact Matthew Cook

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Dear Sir/Madam

**Request for Input: *Exploring the Growing Use of Technology in the Audit, with a Focus on Data Analytics***

We appreciate the opportunity to comment on the International Auditing and Assurance Standards Board's ("IAASB") **Request for Input: *Exploring the Growing Use of Technology in the Audit, with a Focus on Data Analytics*** ("RFI"). We have consulted with, and this letter represents the views of, the KPMG network.

In recent years we have witnessed the birth of the information age, with an exponential increase in the amount of data being generated, digitised and stored, along with rapid advances in the performance and sophistication of computer hardware and software. The existence of deeper and richer pools of data, and the emergence of technologies that enable the analysis of data in ways that were not previously possible, present a compelling case for further integration of technology into the audit. As practitioners, we continue to make significant investments to develop Data Analytics ("DA") and other software audit tools, in the belief that they can significantly enhance audit quality and provide greater insights to both the auditor and management.

For these reasons, we agree there are robust public interest arguments for continuing to explore how technology can be effectively used in the audit. However, we also acknowledge that the use of some technologies raises a number of unique and complex questions. Consequently, we commend the IAASB for publishing a summary of the challenges related to this topic and proactively seeking input from stakeholders.

**Impact on Audit**

Whilst the nature, timing and extent of the impact that technology will have on the audit are difficult to predict, emerging technologies like automation, artificial intelligence, block-chain and even drones have the potential to transform the way an audit is conducted whilst enhancing audit quality. Consequently, it is essential that both standard setters

and regulators take actions that will enable greater use of technology in the audit. As a global standard setter, it is particularly important that the IAASB takes a leading role.

Aside from the audit, we note that the growing use of technology by management presents similar opportunities and challenges for business. We expect the use of technology by business to expand dramatically as technologies such as data analytics are embedded into decision making and financial reporting processes, as well as the internal control environment. This will inevitably impact on the way an audit is conducted in the future.

Our expectation is that the above trends will have a major and ongoing impact on the audit profession, including:

- the learning agenda and skillset requirements for auditors;
- the quality, depth and precision of risk assessment, including fraud risk;
- the nature, quantity and sources of data analysed to generate audit evidence;
- the degree of automation in the audit, including judgmental areas;
- the nature and extent of audit testing that is performed centrally/remotely;
- the number and value of “outliers/exceptions” identified in testing and the way they are addressed;
- the extent of reliance that auditors place on:
  - their firm’s policies and processes (accreditation, training, testing of tools);
  - the work of specialists; and
- the nature and extent of reliance that auditors place on technology used by others (e.g. management or component / predecessor auditors).

Our belief is that realising the benefits of using more advanced technologies in the audit will be highly dependent on the ability of standard setters, practitioners and regulators to proactively engage on a frequent and timely basis to identify and understand the key trends and related challenges, and to work collectively to develop a consensus on solutions.

Ideally, these activities should involve interaction with national standard setters to minimise the risk that significant inconsistencies emerge globally with respect to the standard setting response.

## **The Way Forward**

The challenges arising from the use of technology in the audit are numerous, complex and likely to continue to evolve. Standard-setting activities alone will unlikely be able to provide timely solutions to the complex matters that practitioners are currently grappling with. Focusing primarily on the potential impact of technology on auditing standards and viewing changes that may be needed to standards as a precondition to the use of technology we believe could inhibit or slow down innovations in auditing. Consequently, we believe that a broad-based approach, which we describe further below, is needed to understand and tackle the issues.

We agree with the challenges described in the RFI, which are further complemented by challenges identified by us (see appendix), but we believe that further discussion and analysis are needed before the appropriate actions can be determined. Whilst there is an urgent need to make progress, premature standard setting could be counter-productive and have unintended consequences. Given the number of standards that are likely to be impacted, and the desire for any revisions to be “future proof” to the extent possible, determining the appropriate revisions to make to the standards will necessarily take time.

Depending on the nature of the challenge, we expect that the appropriate response will likely require one or a combination of:

- discussion and knowledge sharing among standard setters, practitioners and regulators to develop a consensus or establish positions;
- guidance on the interpretation and application of ISAs to the use of technology in the audit (perhaps in the form of an IAPN); and/or
- new or amended auditing standards to address and perhaps encourage the use of technology currently not envisaged by the standards.

Our proposal is for the IAASB to establish a resource group consisting of IAASB representatives (e.g. DA working group and staff), audit firms, regulators and other interested parties (e.g. other national standard setters). Similar to the resource groups established by the International Accounting Standards Board to support the implementation of financial reporting standards such as IFRS 9 and IFRS 15, the DA resource group could convene regularly to:

- provide a forum for stakeholders to learn from each other about the interpretation and application of ISAs in a DA environment;
- identify, prioritise, analyse and propose potential solutions to issues arising from the interpretation and application of ISAs in a DA environment; and

- inform the IAASB about interpretation and application issues to enable the IAASB to determine what, if any, action is needed from a standard setting or guidance perspective.

Whilst the DA resource group may not itself issue guidance, it could publish summaries of discussions and views expressed which could promote consistency whilst standard setting activities are undertaken.

To be effective, the DA resource group would likely require a significant time commitment from its members. The membership might also need to evolve over time as the nature of the challenges the group focuses on changes (i.e. different specialisms may be needed). It is possible that the IAASB's Data Analytics Project Advisory Panel ("the Panel") could fulfil the role of the resource group as outlined above, provided the Panel meets with sufficient frequency to identify, prioritise, discuss and provide input for solutions to the key challenges, and the Panel releases summaries of these meetings (either to a broader population of stakeholders or by making them publicly available).

In addition to contributing to the IAASB's work on DA, we believe the benefits of the approach outlined above would include:

- promoting consistency and clarity in interpreting and applying ISAs in a DA environment by providing insights on practical solutions to areas where currently the standards are silent, require significant interpretation or appear to inhibit the use of certain technology solutions;
- enabling stakeholders to obtain a more timely, albeit non-authoritative, insight into contentious issues and possible responses, compared to a more lengthy standard-setting;
- providing an opportunity for practitioners to share experience gained from using DA tools and to discuss the conceptual challenges they encounter in practice;
- increasing user confidence in DA through regulator participation in the discussions, and better insight for the regulators into the way auditors use DA;
- encouraging and not inhibiting innovation (which may happen if changes to standards are made prematurely) when challenges are likely to continue to emerge and evolve;
- having an ongoing process, rather than a one-off solution, which can better respond to future technological developments;
- providing insight to audit committees / those charged with governance with respect to the changes the standards are undergoing and how that may affect



the audit, as well as a better understanding of the benefits and costs of using DA in the audit.

Our responses to the specific questions posed by the RFI are included in the appendix to this letter.

Please contact Matthew Cook at +44 (0)20 7311 2369 if you wish to discuss any of the issues raised in this letter.

Yours faithfully

*KPMG IFRG Limited*

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cc: Len Jui, KPMG

## **Appendix – our responses to specific questions raised in the RFI**

### ***Question (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 statements audit?***

We believe that the RFI considers the main circumstances and factors. We agree with your observations regarding retraining and reskilling auditors, but we think the issue is deeper. We believe that universities and other educational and professional development institutions need to keep abreast of the impact that technology is having on the audit and regularly evaluate and update their curriculums to remain relevant.

We have identified additional circumstances and factors below that, in our view, may impact the use of DA.

#### **Data acquisition and IT matters**

- Configuring audit technology to enable the extraction of data from an entity's systems will continue to be a major challenge, particularly for an entity that has bespoke systems or does not operate an integrated ERP. Changes that management makes in coding, control set-up or processes will all influence the auditor's ability to use technology to extract and analyse data to obtain audit evidence.
- Management may lack the necessary knowledge or resource to extract the required data. Embedding an auditor's data analysis module within an entity's ERP system could resolve this issue, but can raise auditor independence challenges if auditor technology is integrated directly into an entity's system and, by doing so, management is able to use these tools and potentially integrate them into the entity's internal control environment (see also "Ethics and independence" below).
- Management may have insufficient knowledge of the legal considerations related to the provision of data to the auditor, which could lead to a reluctance to provide data or inadvertent non-compliance with laws and regulations when they do.
- Increased costs and complexity could arise from a need for the auditor to maintain sufficient DA infrastructure for all versions of tools for the duration of the audit documentation retention period (which may be up to ten years). Additional challenges may arise when the auditor uses third party vendor DA tools, which may not be vendor supported through the entire retention period.

#### **Ethics and independence**

- As the growing use of technology transforms the audit, there will need to be reflection on what the broader implications could be, and ethics and independence

considerations will likely be part of this conversation. Ethics and independence standards may need to evolve to respond to any issues that emerge.

### **Auditor rotation**

- Whilst DA capabilities can be a differentiator and encourage audit rotation when auditors can demonstrate how their tools enhance audit quality, increased use of DA tools may also pose challenges when a change of auditor occurs as audits become increasingly tailored to client systems and the information they generate. First-year audits may result in significantly more investment / disruption for both auditor and management than subsequent audits. Additionally, more effort will be required for successor auditors to understand and review work done by the predecessor auditor to obtain audit evidence regarding the opening balances. The above challenges will be particularly prevalent in jurisdictions where mandatory firm rotation exists.

### **Expectation gap**

- An expectation gap may emerge between what the market and other stakeholders expect from DA in the audit and what is possible given the nature of the IT systems. In many cases, an entity's IT environment may not be ready for fully DA-driven audits – e.g. entities operating large numbers of disparate, often legacy, applications or multiple instances of the same application.
- As the use of technology in the audit increases, there may be an expectation in the market that the costs of delivery decrease and that this should be reflected in audit pricing. However, the costs of delivery are unlikely to decrease and may even increase, given the significant investment required to develop, maintain and upgrade DA capabilities and infrastructure, the need for more training, increased involvement of specialists and more senior audit professionals, plus the increased effort to extract and validate data, analyse output and potentially investigate a larger number of outliers/exceptions.

### **Legal and regulatory challenges**

- Advanced DA capabilities frequently require significant investment and specialist support. This will likely necessitate the centralisation of these capabilities in service centres. With many jurisdictions prohibiting the cross-border transfer of data and/or audit work papers, this may make it difficult if not impossible for smaller audit firms (even those in large global networks) to deploy the more advanced DA tools in their own markets.
- Achieving global consistency in audits is clearly a goal that practitioners and stakeholders universally support. Whilst DA tools have significant potential to increase consistency, there are specific factors that may lead to inconsistencies, too. The use of technology solutions in different jurisdictions may be restricted by legal

and regulatory requirements, the sophistication of client IT systems, the nature of the audit firm's tool deployment (usually cascaded), the availability of skills in the local market to operate the tools, software licensing restrictions and other factors.

- The RFI recognises the importance of practitioners establishing quality control processes over the development of data analytics technology. Regulators may wish to scrutinise these processes during their inspections and this may pose particular challenges when tools are developed centrally or globally and the quality control processes are in different jurisdictions. It would therefore be beneficial if regulators could develop a consistent (and preferably collaborative) approach to regulatory oversight in this area.
- DA tools frequently have the capability to run multiple automated routines on data at minimal incremental cost or effort. Some DA tools may automatically generate output such as data visualisations, regardless of whether the auditor intends to use this output. Expectations may need to be managed so that auditors are not frequently challenged as to why they have not reviewed all output automatically generated by a DA tool and/or run all possible automated routines on the extracted data when the auditor did not consider this necessary.

***Question (b) – Is our list of standard-setting challenges accurate and complete?***

Overall, we believe that the list of standard-related challenges included in the RFI identifies the main relevant challenges. Notwithstanding the importance of other challenges identified, our discussions indicate that the most acute challenges, which currently affect the use of DA, relate to:

- the nature of audit evidence obtained via DA routines – i.e. whether those routines constitute risk assessment procedures, substantive procedures (and what type – test of details or substantive analytical procedures) or test of controls or a combination thereof;
- the definition of “outliers/exceptions” and how to respond to them – i.e. the level of work needed – considering the fact that DA tools usually analyse a broader population of items in a more granular way, thereby producing significantly more outliers/exceptions than traditional audit techniques; and
- challenges in applying the documentation requirements when using DA.

The current lack of clarity in ISAs surrounding the above issues can discourage auditors from using DA tools because:

- the lack of clarity regarding the nature of audit evidence obtained via DA routines often results in DA tools only supplementing, rather than substituting, traditional procedures, or results in DA routines being used for risk assessment purposes

only because it is uncertain what, if any, substantive audit evidence they provide;

- the lack of clarity regarding the work needed in relation to investigating outliers / exceptions may result in the auditor performing more work than may be necessary. Clarity is also needed as to what impact, if any, the existence of outliers identified during risk assessment may have on the auditor's assessment of control risk; and
- audit documentation issues related to the use of DA are being raised by regulators in their inspections.

In addition to the standard-setting challenges identified in the RFI, we believe that the following challenges should also be considered.

- **Advanced tools** – more advanced tools (such as cognitive tools, artificial intelligence, robotics etc.) are under development that are able to read documents, process language, reason, interpret, infer and evaluate data. These tools are expected to become increasingly sophisticated in the future.

Standard-setting activities should take into consideration the implications of those tools for current standards, and specifically how procedures that require the application of professional scepticism / professional judgment and the performance of audit techniques, such as inspection or observation, can be automated. For example, can software “inspect” a board minute, can a drone “observe” inventory, can an engagement partner “direct” and “supervise” technology, particularly if that technology is cognitively learning how to audit?

- **Management's use of DA** – Management is embedding technologies such as data analytics into decision-making and financial reporting processes, as well as the internal control environment. This may present challenges when testing controls or auditing estimates that use output from sophisticated DA tools, particularly in relation to determining how much testing is required by the auditor to conclude that the output from the tool is reliable. As models used to prepare estimates become increasingly complex and rely on DA tools to analyse larger quantities of data, it may also become more difficult for the auditor to independently develop their own estimates.

Another challenge to consider is that even if a consensus emerges that current auditing standards do not allow the use of specific applications of technology to obtain audit evidence, management may still embed similar technology in their own systems. Standard setters need to consider whether this could impact the auditor's ability to place reliance on internal controls and work performed by internal audit that uses similar technology.

Finally, challenges could also arise when internal auditors use DA tools that essentially have the same function as tools used by the external auditor and would

generate the same results. Clarification may be needed regarding whether the auditor can place reliance on work done by internal audit in this scenario, and/or whether this could be analogous to providing direct assistance (which may be prohibited in some jurisdictions).

- **Quality control processes** – the RFI discusses the importance of auditors establishing quality control processes to assess the integrity and reliability of DA tools. Quality control standards also need to address issues such as:
  - the required competence and training of the engagement partner, EQCR and staff in order to use and interpret the results of DA tools, and their ability to rely on others within and outside the firm that execute DA routines and understanding their results; and
  - how to apply the current requirements to direct and supervise staff when some of the audit work is automated (see, for example, our discussion on advanced tools above) and how to address the challenges that arise from more work being done centrally rather than through traditional engagement teams.
- **Group audits** – the RFI refers to group audits in the context of the planned involvement of the DAWG in other ongoing projects of the IAASB. Whilst we agree with the issues identified in the RFI in this section, the IAASB should also consider the challenges arising from increased centralisation of testing. For example, component auditors are increasingly likely to be asked to rely on work performed centrally by the group engagement team for component and local statutory reporting purposes. When the work performed centrally comprises a substantial amount of the audit evidence, this may have communication, evidence, documentation and reporting implications for the component auditor.

Challenges may also arise due to differing DA capabilities of component auditors from other firms and issues related to sharing working papers. Clarity regarding what, if any, work is required by the auditor to assess the integrity and reliability of the component auditors' tools (applicable to predecessor or joint auditors, too) would be useful, particularly given that component auditors will likely be reluctant to share information if it involves disclosing any proprietary intellectual property. A key question is whether the auditor should be able to assume they can rely on the quality control processes at the component auditor with respect to the reliability of the tool, and focus on obtaining an understanding of what the DA tool does, whether it meets the audit objective and how it has been used in the audit.

- **New audit techniques** – the use of DA tools may include techniques currently not addressed by ISAs. Examples of such circumstances include:
  - the use of complex statistical models (e.g. regression analysis) and how to “measure” evidence received from them. Standards will also have to clarify

whether the auditor can “take credit” for procedures that provide less evidence than anticipated (i.e. should the auditor completely disregard the results of procedures which produce less evidence than anticipated or can they take credit for the evidence that was obtained when designing the additional procedures to be performed);

- an increasingly long, complex and opaque audit trail for source, manipulation and compilation. Consideration should be given to whether auditors need new audit techniques to respond to these challenges; and
  - increasing volumes of data from multiple external and internal sources, which may require new techniques to test reliability and relevance (e.g. rely on inherent reliability of data from multiple independent sources and focus on quality of sources rather than testing the data itself).
- **Required procedures** – DA capabilities provide the auditor with a range of effective risk assessment procedures that were not available when the standards were developed. A number of these procedures may be just as effective as existing required risk assessment procedures. Consideration needs to be given to evaluating whether required procedures are always necessary or whether it would be more appropriate to provide prescriptive guidance on the objective of performing risk assessment procedures and leave it to the auditor’s discretion to determine how to meet this objective. Similar considerations may be needed for other required procedures (such as inventory count attendance, for example).
  - **Considerations regarding granularity** – DA routines frequently analyse data at the transaction level, which can raise a number of questions. For example, is a substantive analytical procedure performed on individual transactions still a substantive analytical procedure, or is it closer in nature to a test of detail? When a routine is performed at the transaction level for risk assessment purposes only, to what extent should outliers be followed up?
  - **Expectation gap** - An expectation gap could emerge with respect to the capabilities of DA tools and how they are used (e.g. a misconception that analysing 100% of a population provides absolute, rather than reasonable, assurance). To respond to this potential expectation gap and to provide stakeholders with a better understanding of how DA tools may have enhanced audit quality, it could be worthwhile reconsidering how auditors communicate their work effort and inherent limitations in the auditors’ report. This would enable the auditor to provide more transparency regarding how DA tools were used.

***Question (c) – To assist the DAWG in its ongoing work, what are your views on possible solutions to the standard-setting challenges?***

As discussed in the main body of our letter, we believe that, at this early stage, the

experience gained in applying ISAs in a DA environment is not sufficient to articulate the possible solutions to the standard-setting challenges. We also believe that premature standard-setting activities may hinder or slow down innovation. Please refer to the main body of our letter where we provide more details on our proposal for the way forward.

***Question (d) – Is the DAWG planned involvement in the IAASB projects currently underway appropriate?***

The DAWG's planned involvement in current IAASB projects appears appropriate. However, considering that DA has the potential to impact other auditing standards (and assurance standards), a focus on revisions to ISAs affected by the IAASB's current work plan or exploring revisions only to ISA 520 (as being considered by the DAWG) may be insufficient. Ideally, it would be desirable to determine the revisions required for each standard based on a thorough analysis of the conceptual issues.

***Question (e) – Beyond those initiatives noted in the Additional Resources section of this publication, are there other initiatives of which we are not currently aware that could further inform the DAWG's work?***

In addition to the initiatives noted in the RFI, the DAWG could monitor the work being done by the AICPA's joint working group (between ASEC and ASB) which was established to develop a new Audit Data Analytics Guide.

***Question (f) – In your view, what should the IAASB's and DAWG's next steps be?***

The current situation with respect to the use of technology in the audit is difficult because, on the one hand, stakeholders want timely solutions for urgent or complex matters, but, on the other hand, we do not believe that sufficient experience has been gained in applying ISAs in a DA environment to clearly articulate the possible solutions to the standard-setting challenges.

Consequently, our proposal is to establish a DA resource group, as further detailed above, to facilitate an informed public debate, which would promote consistency and reduce uncertainty in a timely manner.

Whatever approach is ultimately decided upon by the IAASB, we believe it is clear that the process should include extensive outreach, which is key for developing high-quality solutions, especially when considering a topic as complex and dynamic as technology in the audit. When standard-setting activities commence sometime in the future, the IAASB should take into account that the standards might need to be periodically updated as technology evolves. The IAASB may also need to accelerate the pace of the standard-setting processes to keep up with technological developments.