

Feedback Statement
Prepared by the Staff of the IAASB
January 2018

Exploring the Growing Use of Technology in the Audit, with a Focus on Data Analytics

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FEEDBACK STATEMENT – EXPLORING THE GROWING USE OF TECHNOLOGY IN THE AUDIT, WITH A FOCUS ON DATA ANALYTICS

CONTENTS

	Page
Introduction.....	4
Why the IAASB Undertook the Initiative	4
Overview of Respondents	5
What We Heard.....	6
Update on the Data Analytics Project Advisory Panel.....	11
The Way Forward.....	12
Appendix: List of Respondents	

This publication has been prepared by the Data Analytics Working Group (DAWG) to provide feedback on the responses received to the Request for Input (RFI), *Exploring the Growing Use of Technology in the Audit, with a Focus on Data Analytics*. It does not constitute an authoritative pronouncement of the International Auditing and Assurance Standards Board (IAASB), nor does it amend or override the International Standards on Auditing (ISAs).

Introduction

1. In September 2016, the International Auditing and Assurance Standards Board (IAASB)'s [Data Analytics Working Group \(DAWG\)](#) issued a Request for Input (RFI), [Exploring the Growing Use of Technology in the Audit, with a Focus on Data Analytics](#). The RFI provided insights into the opportunities and challenges with the use of data analytics in the audit of financial statements and outlines the insights gained from the DAWG's extensive outreach activities to date.

Why the IAASB Undertook the Initiative

2. Technology continues to evolve at a rapid pace, impacting the way that audits are undertaken. The IAASB has recognized the importance of understanding how the use technology, and more specifically data analytics, is influencing audit quality. In order to ensure that the International Standards on Auditing (ISAs) continue to form the basis for high-quality, valuable and relevant audits, the IAASB agreed to explore whether the ISAs remain "fit for purpose" in light of emerging developments in the technologies used by auditors.
3. The DAWG was established in mid-2015, and the activities of the working group have included the monitoring and gathering of information on the various applications of data analytics and the relationship to the financial statement audit (including, for example the effect on risk assessments, testing approaches, analytical procedures and other audit evidence). The DAWG has also undertaken extensive outreach with a broad range of stakeholders, as well as benefited from the insights gained from robust discussions and debate on the topic of data analytics at various IAASB meetings in 2016 and 2017.
4. Against this backdrop, the IAASB decided to issue the RFI to explore relevant issues, and to assist the IAASB in determining what actions may be appropriate going forward. The purpose of the RFI was to:
 - Inform stakeholders about the IAASB's ongoing work to explore effective and appropriate use of technology, with a focus on data analytics, in the audit of financial statements; and
 - Obtain stakeholder input and perspectives on whether all the considerations relevant to the use of data analytics in a financial statement audit have been identified.

"We see the working group [DAWG] playing an important role in being the Board's 'eyes and ears' on developments, a catalyst to engage stakeholders in debate to develop consensus around key issues, and a valuable resource to the various standard-setting and other projects."

(Pricewaterhouse-Coopers International Limited)

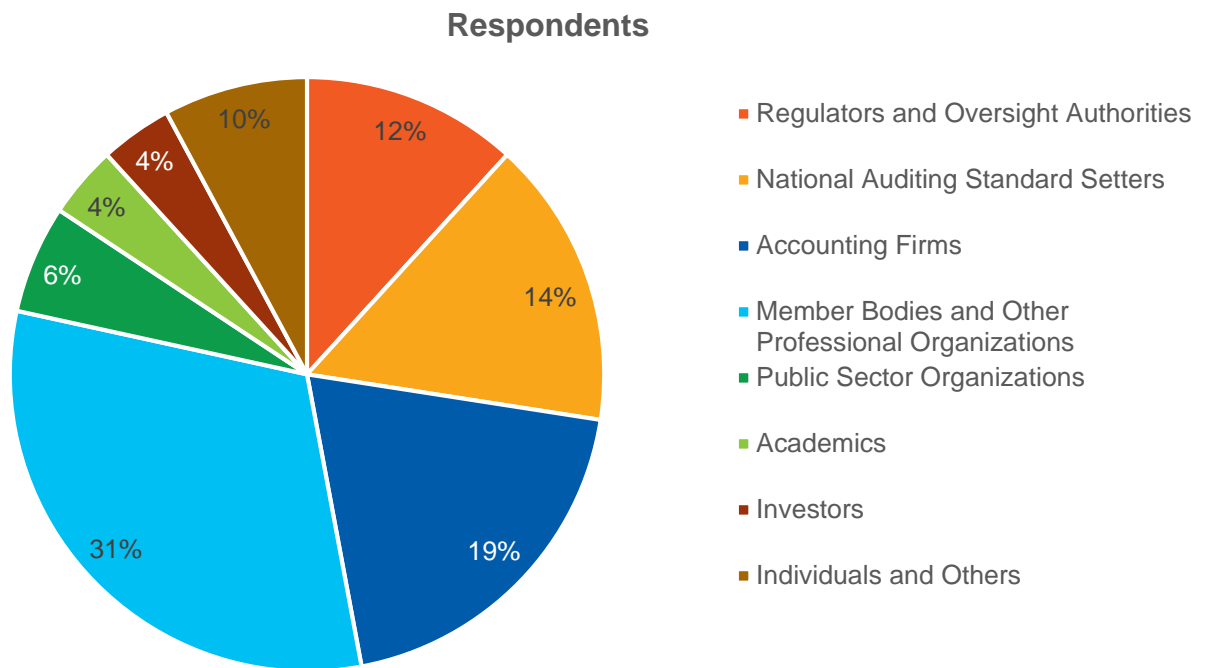
Purpose of this Feedback Statement

5. This Feedback Statement provides an overview of the key messages from the responses to the questions in the RFI. The views expressed offered valuable insights relevant to the ongoing work of the IAASB. The IAASB believes that sharing what we have heard will be useful in stimulating further thinking and exploration of this very important topic.

“We encourage the IAASB to continue to work on this project as the use of data analytics and other new technology driven innovations continue to evolve, and consider the implications of new developments for all its current standard setting projects with a view to contributing to improvement of audit quality and continuing to meet investors and other stakeholders’ needs.” (IFIAR)

Overview of Respondents

6. The comment period closed on February 15th, 2017, with 51 responses received from a broad range of stakeholders across a wide range of jurisdictions (the Appendix sets out the names of the respondents). The responses to the six questions posed were supportive of the DAWG in its current role and encouraging in future directions expressed in the RFI.



What We Heard

<p>Key Messages</p> <p>7. Respondents expressed strong support for the work of DAWG, praising both the summary of the current data analytics landscape and its role in developing consensus around key issues and contributing to the improvement of audit quality.</p> <p>8. The ISAs aren't "broken" and should remain principles-based, but need to reflect the digital era in application guidance. Respondents overwhelmingly described a strong desire for practical guidance on the use of data analytics technology. Most respondents believe that the principles in the extant ISAs are still appropriate and accommodate the use of data analytics, and caution against prematurely rushing to change requirements in the standards.</p> <p>9. Applying Professional Skepticism when using data analytics remains paramount, as professional skepticism is integral to understanding the benefits and limitations of data analytics in view of its intended use in the audit.</p>	<p><i>"The principles in the extant ISAs are still appropriate. The challenges relating to the use of data analytics could be addressed by building on the principles already contained in the ISAs and adapting and expanding these to address new tools that have emerged as a result of evolving technology."</i></p> <p>(South African Institute of Chartered Accountants)</p>
<p>10. It was emphasized by accounting firms that they are investing heavily in data analytic technology and thus consider the work of the DAWG both timely and relevant. Respondents generally view the DAWG as a catalyst to develop consensus around key issues, whose work will contribute to the improvement of audit quality.</p> <p>11. Respondents also emphasized the importance of exercising professional skepticism when using data analytics, including making the link to the procedures performed, the nature of the evidence obtained and consideration about the outputs from procedures being performed using data analytics.</p>	
<p><i>"The auditor should, among other things, understand the benefits and limits of the data analytics tools in view of its intended use in the audit; exercise professional skepticism when using data analytics or other technologies; ..."</i></p> <p>(International Forum of Independent Audit Regulators)</p>	<p><i>"The importance of professional judgement, professional skepticism and critical thinking should be continued to be emphasized, as these are integral in determining the appropriate data to use, the procedures to perform, the relevance to the audit, the nature of audit evidence, and evaluation of the results of data analytic procedures."</i></p> <p>(Australian Auditing and Assurance Standards Board)</p>

<p><i>“We emphasise the importance of the continued application of auditor professional skepticism and professional judgments which should not be replaced by the use of data analytics.”</i></p> <p>(International Association of Insurance Supervisors)</p>	<p><i>“While it is essential that the audit engagement team be expanded to include specialists, audit firms must continue to train auditors to exhibit enhanced critical thinking skills and professional skepticism, particularly when evaluating the results of audit data analytic procedures.”</i></p> <p>(Rutgers, The State University of New Jersey)</p>
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Environmental Factors and Circumstances Impacting the use of Data Analytics in a Financial Statement Audit

12. The RFI listed a number of circumstances and factors that impact the use of data analytics in a financial statement audit. These include data acquisition; conceptual challenges, in that data is being used differently than in past audits; legal and regulatory challenges; resource availability; how regulators and audit oversight authorities maintain oversight; and the investment in re-training and re-skilling auditors.
13. There was overwhelming agreement by all the respondents with the circumstances and factors impacting data analytics listed in the RFI.
14. Regulators and oversight authorities and national auditing standard setters were most concerned with issues of data acquisition and auditor skills, noting that the source and quality of the data remained a key consideration. It was also noted that audit clients may be hesitant to provide access to live operational systems, and therefore that the results of the data analytics procedures undertaken are only as reliable as the data upon which the results are based.
15. Accounting firms shared the concerns noted in the RFI about re-training and re-skilling auditors. Many respondents believed this challenge applies to a broader audience; for example, it was noted that regulators and audit committees would need the ability to understand the data analytics performed as part of assessing the work of the auditor. Accordingly it would be likely that collaboration with universities and other educational institutions, including those providing continuing professional education, would also be necessary.
16. Respondents from accounting firms highlighted concerns about regulators and oversight authorities maintaining oversight in a rapidly changing area, when these authorities have little experience themselves of inspecting audits involving the use of data analytics and other technology innovations. Accounting firms identified a reluctance to embrace data analytics because of the concern that regulators may have different interpretations on how audit standard objectives are met. For example, one respondent is aware of situations in which auditors used data analytics on 100% of a population, but also believed it necessary to perform sampling procedures on the same population to meet the

“The RFI recognizes the importance of practitioners establishing quality control processes over the development of data analytics technology. Regulators may wish to scrutinize 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.”

KPMG

requirements of the ISAs. Firms also noted that data analytic technology and tools are likely to be developed globally at the accounting firm or network level. As a result, a consistent approach to oversight may be challenging.

17. Respondents also discussed the need for data standards (that is, standardization of data) and suggested involving the Internet Engineering Task Force.

Audit Standard-Setting Challenges

18. All of the respondents expressed agreement with the challenges identified in the RFI.
19. Regulators and oversight authorities highlighted the biggest challenge as relating to the determination of whether the requirements of the ISAs have been met. These respondents were particularly concerned with how audit evidence provided by data analytics is demonstrated within the existing audit model, in particular in applying the documentation requirements.
20. National auditing standard setters emphasized the challenge of considering the relevance and reliability of data, whether internally generated or external to the entity, and determining the appropriate level of work effort for exceptions identified.
21. Other possible challenges identified by respondents included:
- How stakeholder expectations are managed in relation to the procedures undertaken, for example, reference to “100% testing” may be misleading in some instances. The impact of other emerging and evolving technologies, such as block chain.
 - Differences in the audit approach (or quality control processes) when using internally developed data analytics tools versus third-party tools.
 - Performing data analytic procedures on non-financial data.
 - The impact on the audit when the client integrates data analytics in its control environment.
 - How the concept of performance materiality applies when designing data analytic audit procedures.
 - Ethical requirements; for example, the implications when the client integrates its own or the auditor’s data analytic technology or tools in its control environment.
 - The impact of auditor rotation; for example, the work effort required during the audit of opening balances when the prior year auditor utilized data analytic technology or tools.

“In particular, test of controls is one area where we perceive it to be more difficult to apply data analytics.”

UK Financial Reporting
Council

The Standard-Setting Path Ahead

22. Respondents offered a variety of suggestions for possible ways to meet the challenges described in the RFI. While some suggested that changes to the standards may be needed, most cautioned against rushing to change the requirements in the standards. Many respondents urged that the standards should remain principles-based, believing that provides the flexibility necessary to accommodate the rapid pace of technological change.

23. Most respondents identified guidance in using data analytics to meet the requirements of the ISAs as one possible solution to the standard-setting challenges. Practical guidance is widely seen as the best way in the short-term to address the challenge that, while the current standards do not prohibit the use of data analytics, they do not encourage the use of innovative, technology-enabled procedures. It was noted that as compared to revising standards, non-authoritative guidance, with real-life examples, can be produced more quickly.
24. Specific suggestions from respondent groups for possible solutions were also provided. A key suggestion included having the International Accounting Education Standards Board's (IAESB) International Accounting Education Standards address the perceived skills gap in data analytics among auditors.
25. Regulators and oversight authorities also provided insights as to matters of importance to consider as revisions are made to the standards, including:
- Retaining the risk-based approach in the ISAs.
 - Revising the standards in a way that reflects current technology, yet remains technologically neutral and provides the ability to adapt to and accommodate changes in technology.
 - Clarifying when data analytics may be appropriate in all standards for which the issue is relevant.
 - Considering the implications for audits in which data analytics are not being applied.
 - Clarifying that when data analytic procedures are applied, documentation should be sufficient for a knowledgeable third party to understand and support the conclusion reached.
26. National auditing standard setters urged continued engagement with stakeholders, specifically auditors already utilizing data analytics, data analytic specialists and data scientists, and software developers.
27. Accounting firms stressed that the development of non-authoritative guidance is critical, and expressed concern that premature standard-setting might hinder or slow down innovation.
28. Public sector organizations repeated the themes expressed by other respondents, such as keeping the standards technologically neutral. Some public-sector organizations urged caution against developing premature solutions; one noted that it is “early days for solutions” and the “emphasis... should be on observing the responses of practitioners to these challenges.”
29. Member bodies echoed the call for guidance on the use of audit data analytics, and the need for auditing standards to remain principles-based and sufficiently flexible and adaptable in a changing business environment. Some suggested engaging in the work of others in various projects relating to data analytics (for example the AICPA). As with other groups of respondents, comments regarding

“We recognize that an appropriate standard-setting response to the challenges identified may not always involve updates to the ISAs and that other forms of guidance may be effective to address particular issues and perhaps be more useful to auditors.”

Ernst & Young Global Limited

“It is neither practicable nor desirable to revise all impacted standards at once.”

(UK Financial Reporting Council)

changing standards spoke to the balance required between obtaining sufficient information to revise well-established requirements and having an excess of caution that hinders innovation.

30. Academics noted that active communication between accounting firms, academic institutions, regulators, DAWG, and other standard-setters is essential, so that the standards reflect current practice and developments. Individuals and others who responded also stated that priority should be given to developing non-authoritative guidance and emphasized the importance of training of auditors. Some respondents believe that currently, auditors tend to have an insufficient understanding of IT to be able to come up with relevant and effective audit procedures using data analytics.

IAASB Projects Currently Underway

31. The IAASB currently has a number of ongoing projects and initiatives, as detailed in its Work Plan for 2017–2018. As stated in the RFI, the DAWG is actively involved in the IAASB's current projects on professional skepticism, ISA 315 (Revised)¹, quality control and group audits (ISA 600²), to contribute to the further progress of those projects, including where the standards addressed by those projects might make reference to or include language related to data analytics.
32. All respondents supported the DAWG's planned involvement in these projects, and many suggested that the DAWG's involvement needs to be increased or accelerated. Views were expressed that projects with the potential to advance data analytics be given priority, and that the IAASB may need to invest additional resources to progress data analytics related activities.

Other Additional Resources

33. The RFI identified a few initiatives relevant to the DAWG's work based on its outreach performed to date. These are the [Rutgers AICPA Data Analytics Research Initiative](#), which undertakes research projects that will focus on the potential for further integration of analytics into the audit process at a foundational level; a series of articles by the Institute of Chartered Accountants of England and Wales (ICAEW) with the objective of facilitating a dialogue among auditors and audit regulators and generally raising the level of awareness (particularly with audit committee members) with respect to the use of data analytics in the audit; and the work of CPA Canada's Audit Data Analytics Committee, which is focused on conducting research and delivering quality thought leadership and non-authoritative audit guidance in regard to the use of data analytics in the audit of the financial statements.
34. Respondents identified additional initiatives and resources for the DAWG to consider. Most frequently suggested by respondents was the UK Financial Reporting Council's (FRC) audit quality thematic review, [The Use of Audit Data Analytics in an Audit of Financial Statements](#), followed by the AICPA's [Guide on Audit Data Analytics](#). Regulators and oversight bodies, as well as a national standard setter, noted that most large firms have developed data analytic guidance for their internal use.
35. Additional relevant resources identified are as follows:
- [The Institute of Internal Auditors' "Global Technology Audit Guide"](#)

¹ ISA 315 (Revised), Identifying and Assessing the Risk of Material Misstatement through Understanding the Entity and Its Environment

² ISA 600, Special Considerations – Audits of Group Financial Statements (Including the Work of Component Auditors)

- [The World Bank/Centre for Financial Reform's document "Audit Data Analytics: Resources and Tips"](#)
- [JICPA IT Committee Research Report No. 48, "Outlook for IT-Based Auditing"](#)
- [ACL's report 'White Paper: Best Practices for the Use of Data Analysis in Audits'](#)
- Research papers resulting from a project jointly sponsored by ICAS & FRC:
 - ["Skills, Competencies and the Sustainability of the Modern Audit"](#)
 - ["The Capability and Competency Requirements of Auditors in Today's Complex Global Business Environment"](#)
- [ISO Audit Data Collection Project](#)
- [AICPA Audit Data Standards](#)
- [The Internet Engineering Task Force](#)
- [The INTOSAI Data Analytics Working Group](#)
- Work performed by academician at Copenhagen Business School
- Research conducted by the PCAOB on the effects of changes in the use of data and technology in audits

Respondent's Views on Next Steps

36. Respondents overwhelmingly supported the next steps of the IAASB and DAWG that were included in the RFI. Respondents suggested that the revision of ISA 230, *Audit Documentation*, and ISA 500, *Audit Evidence*, be prioritized by the IAASB and that the effects of new technologies, such as block chain, artificial intelligence, and robotics, be considered. Most significantly, responses to the question about next steps reiterated the importance of guidance.

<p><i>"We believe the priority should be the development of guidance that demonstrates how data analytics can be utilized within the existing audit standards."</i></p> <p>(Chartered Accountants Australia and New Zealand)</p>	<p><i>"We encourage the IAASB to progress the project with energy and open mind and to focus attention in the short-term with providing guidance – through the development of non-authoritative material, including staff papers and international auditing practice notes..."</i></p> <p>(Accountancy Europe)</p>
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Update on the Data Analytics Project Advisory Panel

37. As discussed in the RFI, the IAASB has now formed its [Data Analytics Project Advisory Panel](#). This Advisory Panel was established to inform the IAASB's work on data analytics by:
- Advising the DAWG (and other IAASB task forces/working groups as necessary) on the developments in data analytics' use in audit, thereby further informing the IAASB's thinking and approach to its standard-setting activities;
 - Serving as a technical resource to the IAASB and Working Group and providing an external perspective on the use of data analytics in a financial statement audit;

- Acting as a sounding board for the DAWG in Request for Input feedback considerations and when exploring the potential way forward, including implications and timing; and
- Providing input to any guidance or materials the IAASB may develop.

The Way Forward

38. The importance of the use of data analytics in a financial statement audit has been recognized by the IAASB and its stakeholders.
39. The DAWG is committed to exploring and understanding how the use of technology and more specifically, data analytics, can enhance audit quality, and to articulating this clearly for stakeholders. Firstly, the DAWG will continue inputting to current IAASB projects through its interaction with current IAASB project task forces and working groups, so that the IAASB's standards, as they are developed and revised, will appropriately incorporate more up-to-date considerations relevant to the use of data analytics in current and future financial statement audits. As the IAASB commences its work on audit evidence (incorporating further consideration of data analytics in the ISAs) The IAASB will also continue to monitor the activity of the AICPA Audit Evidence Task Force and consider the implications for potential revisions to ISA 500. (Note that this monitoring will be facilitated by the fact that the chair of the DAWG is also chair of the AICPA Audit Evidence Task Force.)
40. The IAASB firmly believes that further exploration of this topic is key. The DAWG will therefore continue its outreach, including, as appropriate, activities such as roundtables, both in-person and virtual, with for example a variety of firms to more fully understand current applications of data analytics, and to learn more about the firms' concerns and best practices. The DAWG will also consider how it can leverage the work of others in this area by reaching out to other groups who are also exploring the use of data analytics in a financial statement audit, for example, the DAWG intends to establish on-going interaction with the US Public Company Accounting Oversight Board (PCAOB), and will continue dialogue with the Data Analytics Project Advisory Panel.
41. The DAWG will also refer the feedback received from respondents about other technologies whose impact on auditing deserves further consideration, such as block-chain technology, artificial intelligence, robots, etc., to the IAASB's Innovation Working Group. The objective of the Innovation Working Group is to explore emerging developments in the audit, assurance and related services fields for the purpose of assisting the IAASB in identifying opportunities for relevant and effective standard setting, or determining other potential actions, in a timely and informed manner, especially in light of the IAASB's development of its Strategy and Work Plan for 2020–2023.
42. Heeding the strong call for guidance from the respondents to the RFI, the DAWG has begun drafting examples and illustrations of the use of data analytics for inclusion in the application material of the IAASB standard-setting projects noted previously that are intended to illustrate how data analytics can be used in meeting the requirements of the auditing standards and enhancing audit quality.

Appendix

List of Respondents

#	Respondent (51)
Accounting Firms (10)	
43.	BDO International Limited
44.	Baker Tilly UK Audit LLP
45.	Crowe Horwath International
46.	Deloitte Touche Tohmatsu Limited
47.	Ernst & Young Global Limited
48.	Grant Thornton International Ltd
49.	KPMG IFRG Limited (Network)
50.	Moore Stephens LLP (UK firm)
51.	PKF International Limited
52.	PricewaterhouseCoopers International Limited
Academics (2)	
53.	Hunter College Graduate program
54.	Rutgers, The State University of New Jersey (CarLab)
Public Sector Organizations (3)	
55.	Auditor General of Alberta
56.	Auditor General of New Zealand
Regulators and Oversight Authorities (6)	
57.	International Forum of Independent Audit Regulators
58.	Independent Regulatory Board for Auditors (South Africa)
59.	Financial Reporting Council – UK
60.	Haut conseil du commissariat aux comptes
National Auditing Standard Setters (7)	
61.	Canadian Auditing and Assurance Standards Board
62.	Australian Auditing and Assurance Standards Board
63.	The Japanese Institute of Certified Public Accountants
64.	Auditing and Assurance Standards Board of Malaysian Institute of Accountants

FEEDBACK STATEMENT – EXPLORING THE GROWING USE OF
TECHNOLOGY IN THE AUDIT, WITH A FOCUS ON DATA ANALYTICS

Investors (2)	
65.	Harvest Investments, Ltd.
66.	INFLO Software
Individuals and Others (5)	
67.	Denise Silva Ferreira Juvenal
68.	Shigeto Fukado
69.	Tom Koning (Cygnus Atratus)
Member Bodies and Other Professional Organizations (16)	
70.	Association of Chartered Certified Accountants
71.	American Institute of Certified Public Accountants
72.	Chartered Accountants Australia and New Zealand
73.	CFA Institute
74.	Chartered Institute of Public Finance and Accountancy
75.	Compagnie Nationale des Commissaires aux Comptes and the Conseil Supérieur de l'Ordre des Experts-Comptables
76.	CPA Australia
77.	Chartered Professional Accountants of Canada
78.	European Federation of Accountants and Auditors for SMEs
79.	The Swiss Expert Association for Audit, Tax and Fiduciary
80.	International Association of Insurance Supervisors
81.	Institute of Chartered Accountants in England and Wales
82.	Institute of Chartered Accountants of Scotland
83.	Institut der Wirtschaftsprüfer
84.	Institute of Singapore Chartered Accountants
85.	Malaysian Institute of Accountants
86.	National Association of State Boards of Accountancy
87.	Nederlandse Beroepsorganisatie van Accountants
88.	New Zealand Auditing and Assurance Standards Board
89.	Pennsylvania Institute of Certified Public Accountants
90.	South African Institute of Chartered Accountants
91.	IFAC Small and Medium Practices Committee
92.	Technology Solutions and Practices Committee of the Institute of Management Accountants
93.	Accountancy Europe

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