

## Technology NAM and Fact Finding

### I. Objective

1. To receive an update on the Working Group's activities.

### II. Working Group's Remit

2. Established March 2021, the IESBA Technology Working Group (TWG) is responsible for two work-streams. They are:
  - (a) **To undertake fact finding to identify and assess the potential impact of technology developments on the accounting profession in relation to ethics and independence.** The fact-finding activities involve targeted stakeholder outreach, and review of existing reports, articles and other publications/media relating to the development, use and implementation of technology by professional accountants (PAs).<sup>1</sup>
  - (b) **To develop or facilitate the development of technology-related non-authoritative guidance materials (NAM) in relation to ethics and independence for PAs and the wider stakeholder community.** Such NAM is intended to:
    - Highlight the Code's provisions that are relevant to dealing with ethical dilemmas or conflicts that might arise when developing, using, or implementing technology.
    - Raise awareness of the ethics (including independence) implications of technology-related developments for PAs; and
    - Assist PAs in consistently applying the Code, including with respect to independence.

### III. Activities since March 2021

#### June 2021 IESBA Discussions

3. The IESBA received two external presentations on blockchain and an update from the Working Group on its efforts to develop NAM and its fact-finding activities. IESBA members raised no significant comments. Subsequent to the IESBA meeting, the Planning Committee suggested that the Working Group provide more clarity about its proposed deliverables, timeline and the role of the TWG beyond December 2021.
4. In advance of the September IESBA meeting, the Planning Committee will consider and provide input on the Working Group's proposals relating to next steps, including specific deliverables, timing and the future role of the TWG (i.e., Section IV of this paper). The IESBA will be briefed on the outcome of the Planning Committee discussion in September.

#### Status of Fact-Finding Activities

5. The TWG has continued to conduct numerous outreach meetings with a variety of stakeholders. Refer to the Appendix 1 to this paper for the list of stakeholder outreach meetings held since February 2020.

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<sup>1</sup> An overview of the key topics and questions being explored is available in the June 2021 Working Group [Briefing Paper](#).

6. The TWG has received several presentations from external presenters about specific emerging technology issues to help further inform its understanding and thinking on the ethical implications of technology developments on PAs:
  - (a) *Blockchain and the Accounting Profession: Perspectives from Literature with an Emphasis on Ethics* from Professor Thomas Calderon, the University of Akron<sup>2</sup>
  - (b) *Cybersecurity and the Accounting Profession: A Discussion of Ethical Implications* from Professor Thomas Calderon, the University of Akron<sup>3</sup>
  - (c) *Ethics for Sustainable Artificial Intelligence Adoption: Connecting AI and ESG*<sup>3</sup> from Mr. Narayanan Vaidyanathan, Head of Business Insights, Association of Chartered Certified Accountants (ACCA)
7. A comprehensive [playlist](#) of the technology presentations is available on the IESBA's YouTube channel. The presentations as well as other resources that the TWG has considered are available on the IESBA's Technology [Focus Webpage](#). The Webpage provides resources to assist stakeholders follow and monitor the work of the TWG. It also provides links to ethics-related guidance and resources relevant to navigating challenges and opportunities arising from evolving technologies.
8. The TWG will continue its fact finding in Q4 2021.

#### **Update on Collaboration Efforts with IFAC and Others to Develop Technology-related NAM**

9. The TWG continues to welcome collaborative opportunities to facilitate the development of NAM. In this respect, it is actively facilitating the development of NAM with IFAC and:
  - (a) The Staff of the Accounting Professional and Ethical Standards Board (APESB). This NAM will provide guidance on how to apply the extant International Independence Standards in specific scenarios, for example, where an audit client asks a firm to:
    - Implement an entire software suite.
    - Implement software developed by the firm.
    - Provide a non-assurance service that might appear to be “routine or mechanical.”
    - Provide a non-assurance service due to insights gained from the use of technology in an audit engagement.

A preliminary working draft has been developed and a mutually agreeable process for review and release is being established. Release is anticipated by December 2021.

- (b) Representatives of the Japanese Institute of CPAs (JICPA). The aim of this NAM is to provide guidance to professional accountants in business (PAIBs) and in public practice (PAPPs) on practical issues in ethical leadership for PAs. This will include topics such as:

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<sup>2</sup> Dr. Calderon performed a summary of academic research on the topics of blockchain and cybersecurity, see Appendix 2, and presented the key observations and findings to the TWG.

<sup>3</sup> This presentation was based on a [report](#) issued by the ACCA and Chartered Accountants Australia and New Zealand which was informed by (1) a global survey with 5,723 respondents; (2) Online discussion group with 42 professionals; and (3) expert interviews with various stakeholder industries, for example, IBM

- How leaders should communicate, structure and demonstrate their responsibility to staff when using, developing or implementing technology.
- How organizations can obtain the type of knowledge and skills relevant in the digital age.

This initiative is at the initial drafting stage. An update will be provided to the IESBA in December 2021.

- (c) Representatives of CPA Canada and Institute of Chartered Accountants of Scotland (ICAS). As previously communicated to the IESBA, the TWG is providing input on four thought-leadership papers resulting from a February 2021 Exploratory Paper and Virtual Event titled; [Ethical Leadership in an Era of Complexity and Digital Change](#).
- The first paper titled, [Complexity and the Professional Accountant: Practical Guidance for Ethical Decision-Making](#) was released in August 2021.
  - The second paper is titled, *Technology is a Double-Edged Sword*, is currently being reviewed. Release is anticipated by October 2021.
  - The other two papers are titled *Managing Bias and Mis/Disinformation* and *Mindset and Enabling Skills*. These are at a preliminary stage and release is anticipated by January 2022.
10. The TWG welcomes IESBA Staff collaboration with IFAC to develop technology-focused installments of the *Exploring the IESBA Code* series. The TWG has provided input on the first installment titled *Applying the Conceptual Framework: Ethics and Artificial Intelligence*. It is anticipated that the first installment will be released by December 2021.

### **Coordination with Technology Task Force and IAASB**

11. In progressing its work, the TWG continues to liaise with the IESBA Technology Task Force and the staff of the IAASB. For example, members of the Technology Task Force participated in the TWG meetings with external presenters. Also, as part of its outreach efforts, the TWG informed stakeholders of proposed technology-related revisions to the Code being developed under the IESBA Technology project, and where appropriate joint TWG and Technology Task Force outreach efforts are undertaken.

### **Presentation on Cybersecurity at the September 2021 IESBA Meeting**

12. To inform the IESBA's ongoing deliberations about ethics and independence issues that might arise from cybersecurity issues, an informational presentation has been arranged for the September 2021 meeting. Following the presentation, IESBA members will be provided an opportunity to ask questions.
13. The presentation titled "Cybersecurity and the Accounting Profession: A Discussion Of Ethical Implications" will be held on September 15, 2021. Drawing from relevant academic research, guest speaker [Dr. Thomas Calderon](#), Professor of Accounting at the University of Akron, will brief the IESBA on:
- How cybersecurity risk is being managed in corporate and financial reporting, as well as audit and assurance, and the potential ethics and independence issues that might arise.

- Perspectives on contemporary cybersecurity threats, including US Securities and Exchange Commission (SEC) risk disclosures.

#### IV. Planned Deliverables and Next Steps

14. The TWG reflected on its progress to date since its establishment in March 2021, which included:
  - Publishing a [Briefing Paper](#) to provide a basis for multi-stakeholder outreach.
  - Participating in and planning stakeholder meetings focused on:
    - Identifying and further understanding the longer-term ethical implications of technology developments on the accounting profession.
    - Raising stakeholder awareness of the potential ethics and independence issues that might arise from the development, use and implementation of technology by PAs.
    - Inviting and encouraging interested parties to partner with the IESBA (and where appropriate IFAC) to develop technology-focused ethics and independence guidance (i.e., NAM).
  - Teaming with other IESBA Task Forces/Working Groups (e.g., the NAS Task Force) to develop technology-related ethics and independence guidance.
  - Putting in place a process for collaborating with IFAC and others on ethics and technology-related initiatives relevant to the work of PAs.
  - Establishing a central location on the IESBA's website for PAs and other stakeholders to access technology-related independence and other ethics thought-leadership and guidance (i.e., NAM) and to monitor the IESBA's technology work.

#### Fact-Finding Timeline and Report

15. Against this backdrop, **the TWG proposes that its existing fact-finding remit continue beyond December 2021**, thereby allowing completion of a full year's work and additional time to synthesize, analyze and report on the insights gained. The additional time would also allow for the TWG to consider and reflect in its report:
  - The inputs received from planned Q1 2022 multi-stakeholder outreach, such as a proposed forthcoming event to be hosted by the Pan African Federation of Accountants (PAFA), and other regional events that are being explored with others, including the Interamerican Accounting Association (IAA).
  - The IESBA's decisions in approving the Technology Exposure Draft (ED), expected in December 2021, and the related Explanatory Memorandum.
16. The TWG believes that there is value in publishing a report on its 2021 fact-finding work. The release of the report is anticipated by September 2022 to allow ample time for the TWG to incorporate the inputs and reactions from IESBA members and stakeholders, including the IESBA Consultative Advisory Group (CAG), and the IESBA-National Standards Setters (NSS) Liaison Group. Following the finalization of the 2021 report, the Working Group will continue its existing fact-finding and NAM remit.

### **Establishment of an External Technology Advisory Committee**

17. In May 2021, a few representatives of the IESBA-NSS Liaison Group suggested establishing an IESBA-NSS Technology Working Group, similar to the IESBA-NSS COVID-19 Working Group. The IESBA expressed broad support for this idea in June.
18. Given the inherent dynamic nature of technological change and related impacts on the accountancy profession, the TWG proposes that the IESBA build on the idea and explore establishing a “standing” Committee of Advisors on the Ethical Implications of Technology in Accounting and Finance (Advisory Committee) made up of NSS and other experts such as technology vendors and developers, regulators, PAIBs and PAPPs. The objective of this Advisory Committee would be three-fold:
  - (a) To become a source of fact finding for the Working Group (and the IESBA);
  - (b) To become possible collaborators and/or peer-reviewers for future NAM; and
  - (c) Raise awareness of the collaborative NAM outlined in Section III.
19. The TWG’s initial view is that the Advisory Committee membership would comprise six to eight external individual members; and a representative of each of the IAASB’s and IFAC’s Technology Advisory Groups, as well as the IESBA Technology Working Group. It is anticipated that the Advisory Committee will be chaired by a member appointed from within the Advisory Committee and staff support provided by one of the member organizations. The TWG believes that this approach would facilitate the most efficient and effective operation of the proposed Advisory Committee. The TWG also considers that there is merit in issuing a public call for nominations for Advisory Committee membership in order to amplify efforts aimed at engaging with stakeholders other than PAs, attract the best (most qualified with diverse backgrounds) individuals for the role, and increase the visibility of the IESBA’s technology fact-finding initiative. This approach might also serve to elevate proposed the Advisory Committee’s transparency, objectives, and relevance.

#### **Matters for Consideration**

CAG representatives members are asked for views on the TWG’s planned deliverables and next steps.

**Appendix 1**

**Targeted Outreach and Events Since Release of Phase 1 Report in February 2020**

(\*\* represent outreach meetings held since IESBA’s June 2021 meeting)

Stakeholder/ Event	Date	Region
<b>Regulators and Oversight Authorities</b>		
International Organization of Securities Commissions	10/20	Global
Committee of European Auditing Oversight Bodies <ul style="list-style-type: none"> <li>International Auditing Standards Subgroup<sup>4</sup></li> </ul>	11/20, 5/21	Europe
** Office of the Comptroller of the Currency <ul style="list-style-type: none"> <li>Robert J. De Tullio, Senior Policy Accountant (and CAG representative for Basel Committee on Banking Supervision)</li> <li>Mary Katherine Kearney, Professional Accounting Fellow</li> </ul>	7/21	North America
<b>Academia</b>		
Rutgers University <ul style="list-style-type: none"> <li>Professors Miklos Vasarhelyi and Helen Brown-Liburd, and PhD candidate Ivy Munoko</li> </ul>	5/20	North America
** American Accounting Association - Ethics Symposium <ul style="list-style-type: none"> <li>Panel Session on "Blockchain, Smart Contracts and Related Technologies: Perspectives on Ethics"</li> </ul>	7/21	North America
<b>Independent National Standard Setters</b>		
Accounting Professional & Ethical Standards Board (Australia)	8/20	Asia-Pacific
New Zealand Auditing and Assurance Standards Board	9/20	Asia-Pacific
<b>Software Vendors/Developers</b>		
** MindBridge AI <ul style="list-style-type: none"> <li>Eli Fathi, former CEO</li> </ul>	7/21	North America
<b>Professional Accountancy Organizations (PAOs), including National Standard Setters</b>		
Chinese Institute of CPAs	4/21	Asia-Pacific
Accountancy Europe Technet	6/21	Europe
** Interamerican Accounting Association <ul style="list-style-type: none"> <li>Yvonne Huertas, President of the Technology Commission</li> </ul>	6/21	South America

<sup>4</sup> The purpose of the sub-group is to further enhance cooperation and consistency in audit oversight in the European Union regarding the adoption and use of standards on professional ethics, internal quality control of audit firms and auditing and to contribute to technical examination of international auditing standards, including the processes for their elaboration, with a view to their adoption. [Members](#) consist of representatives (from their respective Audit Oversight Board) of the CEAOB members states.

Stakeholder/ Event	Date	Region
** CPA Canada Public Trust Committee and Independence Standing Committee <ul style="list-style-type: none"> <li>Michelle Thomas, Director of Regulatory Affairs and Independence Standards</li> <li>Matt Bootle, Independence Standing Committee Chair</li> </ul>	8/21	North America
<b>Firms</b>		
IFAC Forum of Firms	3/20, 10/20	Global
European Group of International Accountancy Networks and Associations	11/20	Europe
** KPMG <ul style="list-style-type: none"> <li>Erik Niemi, Partner, Risk Consulting Services and Global IT Attestation Services Leader</li> <li>Eric Rae, Senior Manager, Technology Risk Consulting</li> <li>Renzo Francescutti, Global Independence Group Partner In Charge</li> <li>Elena Zubarevsky, Managing Director</li> </ul>	6/21, 8/21	North America
** PwC <ul style="list-style-type: none"> <li>William Gee, Partner, Member of PwC's Chief Digital Office</li> </ul>	7/21	Asia-Pacific
** EY <ul style="list-style-type: none"> <li>Clinton Firth, Partner, Global Cybersecurity Lead for Energy and Africa, India &amp; Middle East (AIM) Cybersecurity Leader</li> </ul>	9/21	Middle East
<b>Other Multi-Stakeholder Meetings</b>		
IESBA Consultative Advisory Group	3/20, 9/20, 3/21, 9/21	Global
IAASB Technology Working Group	6/20, 8/20, 5/21	Global
IFAC Technology Advisory Group	2/20	Global
IFAC International Panel of Accountancy Education	7/20	Global
IESBA-National Standard Setters Liaison Group <sup>5</sup>	11/20, 5/21	Global

<sup>5</sup> The IESBA-NSS liaison Group comprises organizations with direct responsibility for promulgating ethics (including independence) standards in Australia, Canada, China, France, Germany, Hong Kong SAR, India, Japan, the Netherlands, New Zealand, the Russian Federation, South Africa, the UK, and the US.

Technology – NAM and Fact-Finding  
*IESBA CAG Meeting (September 2021)*

Stakeholder/ Event	Date	Region
** Institute of Management Accountants • Loreal Jiles, Director of Research, Digital Technology & Finance Transformation	7/21	North America
Multi-Stakeholder Outreach Events		
Virtual Workshop Event hosted by IFAC	10/20	Global
<a href="#">Virtual Workshop Event</a> hosted by CPA Canada, Institute of Chartered Accountants of Scotland, IFAC	2/21	North America
** Virtual Workshop Event hosted by the Saudi Organization for CPAs (SOCPA)	9/21	Middle East



## Appendix 2

### Research on Blockchain and Cybersecurity Summarized by Dr. Calderon and Considered by the TWG

#### *Blockchain*

- Zhang, C., et al. (2018). "The Impact of Disruptive Technologies on Accounting and Auditing Education." CPA Journal
- Yu, T., et al. (2018). "Blockchain: The Introduction and Its Application in Financial Accounting." Journal of Corporate Accounting & Finance (Wiley)
- Murray, J. (2018). "The Coming World of Blockchain: A Primer for Accountants and Auditors. (cover story)." CPA Journal
- Appelbaum, D. and S. Stein Smith (2018). "Blockchain Basics and Hands-on Guidance: Taking the Next Step toward Implementation and Adoption." CPA Journal
- Wang, Y. and A. Kogan (2018). "Designing confidentiality-preserving Blockchain-based transaction processing systems." International Journal of Accounting Information Systems
- Schmitz, J. and G. Leoni (2019). "Accounting and Auditing at the Time of Blockchain Technology: A Research Agenda." Australian Accounting Review
- Pimentel, E. and E. Boulianne (2020). "Blockchain in Accounting Research and Practice: Current Trends and Future Opportunities\*." Accounting Perspectives
- O'Leary, D. E. (2017). "Configuring blockchain architectures for transaction information in blockchain consortiums: The case of accounting and supply chain systems." Intelligent Systems in Accounting, Finance & Management
- Nordgren, A., et al. (2019). "BLOCKCHAIN IN THE FIELDS OF FINANCE AND ACCOUNTING: A DISRUPTIVE TECHNOLOGY OR AN OVERHYPED PHENOMENON?" ACRN Oxford Journal of Finance & Risk Perspectives
- Maffei, M., et al. (2021). "Blockchain technology: uninvestigated issues emerging from an integrated view within accounting and auditing practices." Journal of Organizational Change Management
- Kokina, J., et al. (2017). "Blockchain: Emergent Industry Adoption and Implications for Accounting." Journal of Emerging Technologies in Accounting
- Carlozo, L. (2017). "UNDERSTANDING BLOCKCHAIN." Journal of Accountancy
- Vincent, N. E. and R. Barkhi (2021). "Evaluating Blockchain Using COSO." Current Issues in Auditing
- Smith, S. S. and J. J. Castonguay (2020). "Blockchain and Accounting Governance: Emerging Issues and Considerations for Accounting and Assurance Professionals." Journal of Emerging Technologies in Accounting
- Smith, S. S. (2020). "Blockchain, Smart Contracts and Financial Audit Implications." IUP Journal of Accounting Research & Audit Practices
- Smith, S. S. (2018). "BLOCKCHAIN AUGMENTED AUDIT - BENEFITS AND CHALLENGES FOR ACCOUNTING PROFESSIONALS." Journal of Theoretical Accounting Research
- Sadu, I. (2018). "AUDITING BLOCKCHAIN." Internal Auditor
- Ryan, M. (2021). "Blockchain and the Future of Auditing." Pennsylvania CPA Journal
- Liu, M., et al. (2019). "How Will Blockchain Technology Impact Auditing and Accounting: Permissionless versus Permissioned Blockchain." Current Issues in Auditing
- Jun, D. and M. A. Vasarhelyi (2017). "Toward Blockchain-Based Accounting and Assurance." Journal of Information Systems

- Brown, B., et al. (2020). "Implications of Blockchain on the Audit." CPA Journal
- Appelbaum, D. and R. A. Nehmer (2020). "Auditing Cloud-Based Blockchain Accounting Systems." Journal of Information Systems
- Alles, M. and G. L. Gray (2020). "'The first mile problem': Deriving an endogenous demand for auditing in blockchain-based business processes." International Journal of Accounting Information Systems
- Dai, J., et al. (2019). "Utilizing Blockchain and Smart Contracts to Enable Audit 4.0: From the Perspective of Accountability Audit of Air Pollution Control in China." Journal of Emerging Technologies in Accounting
- aberi, S., et al. (2019). "Blockchain technology and its relationships to sustainable supply chain management." International Journal of Production Research
- Kewell, B., et al. (2017). "Blockchain for good?" Strategic Change
- Dal Mas, F., et al. (2020). "Can the Blockchain Lead to New Sustainable Business Models?" Journal of Business Models
- Sheldon, M. D. (2018). "Using Blockchain to Aggregate and Share Misconduct Issues across the Accounting Profession." Current Issues in Auditing
- Dai, J., et al. (2017). "Blockchain: An Emerging Solution for Fraud Prevention." CPA Journal
- Dierksmeier, C. and P. Seele (2020). "Blockchain and business ethics." Business Ethics: A European Review
- Dierksmeier, C. and P. Seele (2018). "Cryptocurrencies and Business Ethics." Journal of Business Ethics

#### *Cybersecurity*

- (2017). "The Historical Need for Computer Controls and Security." CPA Journal
- Pierce, S. (2015). AICPA Celebrates 25 Years of Top Technologies for CPAs - AICPA Insights.
- Banham, R. (2017). "Cybersecurity: A new engagement opportunity: An AICPA framework enables CPAs with cybersecurity expertise to perform new services for clients." Journal of Accountancy
- Anders, S. B. (2019). "Cybersecurity Tools for CPAs." CPA Journal
- Alper, A. (2017). "What CPAs Need to Know about New York's New Cybersecurity Requirements." CPA Journal
- Beard, D. and H. J. Wen (2007). "Reducing the Threat Levels for Accounting Information Systems." CPA Journal
- Wallace, L., et al. (2011). "Information Security and Sarbanes-Oxley Compliance: An Exploratory Study." Journal of Information Systems
- Eaton, T. V., et al. (2019). "Accounting and Cybersecurity Risk Management." Current Issues in Auditing
- Bozkus Kahyaoglu, S. and K. Caliyurt (2018). "Cyber security assurance process from the internal audit perspective." Managerial Auditing Journal
- Brumă, L. M. (2020). "An Approach for Information Security Risk Assessment in Cloud Environments." Informatica Economica
- Calderon, T. G., et al. (2006). "Modeling an intelligent continuous authentication system to protect financial information resources." International Journal of Accounting Information Systems
- Chandra, A. and T. G. Calderon (2003). "Toward a Biometric Security Layer in Accounting Systems." Journal of Information Systems
- Calderon, T. G., M .G. McCoskey and C. Onita. (2021). Toward a Protocol for Tax Data Security. Journal of Forensic and Investigative Accounting.

- Gerber, M. and R. von Solms (2005). "Management of risk in the information age." *Computers & Security*.
- Gao, L., T. Calderon, and F. Tang. (2020). "Public companies' cybersecurity risk disclosures." *International Journal of Accounting Information Systems*
- Calderon, T. G. and L. Gao (2021). "Cybersecurity risks disclosure and implied audit risks: Evidence from audit fees." *International Journal of Auditing*
- Huigang, L., et al. (2019). "WHAT USERS DO BESIDES PROBLEM-FOCUSED COPING WHEN FACING IT SECURITY THREATS: AN EMOTION-FOCUSED COPING PERSPECTIVE." *MIS Quarterly*
- Gordon, L., et al. (2008). "Cybersecurity, Capital Allocations and Management Control Systems." *European Accounting Review*
- Islam, M. S., et al. (2018). "Factors associated with security/cybersecurity audit by internal audit function." *Managerial Auditing Journal*
- Aiken, G. M. (2019). "CYBERSECURITY AND PRODUCTIVITY: HAS A CYBERSECURITY CULTURE GONE TOO FAR?" *Proceedings of the American Society of Business & Behavioral Sciences*
- Bansah, E. A. (2018). "The threats of using computerized accounting information systems in the banking industry." *Accounting & Management Information Systems / Contabilitate si Informatica de Gestiune*
- Chul Woo, Y., et al. (2020). "IS CYBERSECURITY A TEAM SPORT? A MULTILEVEL EXAMINATION OF WORKGROUP INFORMATION SECURITY EFFECTIVENESS." *MIS Quarterly*
- Haapamäki, E. and J. Sihvonen (2019). "Cybersecurity in accounting research." *Managerial Auditing Journal*
- Cram, W. A., et al. (2019). "SEEING THE FOREST AND THE TREES: A META-ANALYSIS OF THE ANTECEDENTS TO INFORMATION SECURITY POLICY COMPLIANCE." *MIS Quarterly*
- Banerjee, D., et al. (1998). "Modeling IT Ethics: A Study in Situational Ethics." *MIS Quarterly*
- Benjamin, V., et al. (2019). "DICE-E: A FRAMEWORK FOR CONDUCTING DARKNET IDENTIFICATION, COLLECTION, EVALUATION WITH ETHICS." *MIS Quarterly*
- Hatfield, J. M. (2019). "Virtuous human hacking: The ethics of social engineering in penetration-testing." *Computers & Security*
- Pike, R. E. (2013). "The "Ethics" of Teaching Ethical Hacking." *Journal of International Technology & Information Management*