

IESBA TECHNOLOGY INITIATIVE PHASE 1 FINAL REPORT

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**Prepared by
IESBA Technology Working Group**

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I. EXECUTIVE SUMMARY

1. In accordance with its [Terms of Reference](#) (ToR), the Technology Working Group (TWG) conducted information gathering and analysis of the impact of technology on ethical behavior of professional accountants as part of Phase 1 of IESBA's technology initiative.
2. Under this phase, the TWG focused its information gathering on artificial intelligence (AI) and the related areas of big data and data analytics. In addition to desk research, the TWG also conducted in-person meetings with diverse stakeholder groups including firms, professional accountancy organizations, regulators, national standard setters, academics and ethics organizations. The TWG analyzed the sufficiency of the Code in addressing the relevant ethics issues identified and evaluated whether the IESBA should consider further revisions to the Code to address these issues. As part of its analysis, the TWG compared the AI development principles embodied in a number of AI ethics frameworks published by some governments, transnational organizations and corporations to the fundamental principles in the Code, and considered the impact of any differences on the sufficiency of the requirements and application material included in the Code. Additionally, the TWG has sought views from the IESBA and IESBA Consultative Advisory Group (CAG) prior to presenting its findings and recommendations from Phase 1 in this report.
3. The TWG's analysis did not identify any technology-related ethics issues that might be encountered by professional accountants (PAs) and firms for which the Code does not currently provide high level, principles-based guidance. However, the TWG recommends that the IESBA establish a project and related Task Force to consider a number of potential revisions to the Code that aim to modernize the language and contextual relevance of certain sections of the Code, and thereby support its effective application in an evolving digital age.
4. To that end, Section III of this report sets out the TWG's **Findings and Recommendations for Enhancements to the Code** in five topical areas:

Building Trust – The Critical Role of Ethics and Professional Judgment

1. Add new application material in Part 1¹ of the Code to more clearly highlight a broader societal role for PAs in promoting ethical behavior as a critical, consistent foundation for businesses, firms and other organizations, particularly when developing and using technology.

Complexity of the Professional Environment

2. Revise the Code to more effectively deal with threats caused by the complexity of the professional environment in which PAs perform their professional activities, giving consideration to options such as those described in paragraph 33.

Suitability of the Fundamental Principles for the Digital Age

3. Revise Subsection 113² (Professional Competence and Due Care) to include a PA's responsibility to be transparent, which is not currently expressly stated in the Code. Circumstances that impact the extent of transparency that may be appropriate (e.g., in an

¹ Part 1, *Complying with the Code, Fundamental Principles and Conceptual Framework*

² Subsection 113, *Professional Competence and Due Care*

audit, the type and timing of audit procedures) would need to be considered.

4. Strengthen the concept of accountability in the Code by:
 - Including new material in Subsection 111³ (Integrity) on a PA's willingness to accept responsibility. This would need to take into account whether this aspect of accountability is already covered sufficiently in the proposed new material in Subsection 111 under the IESBA's [Exposure Draft, Proposed Revisions to the Code to Promote the Role and Mindset Expected of Professional Accountants](#) (Role and Mindset ED).
 - More clearly explaining the concept of accountability in Subsection 113 in light of the increasing use of external experts and intelligent agents.
 - Including appropriate references to technology in the provisions relating to relying on the work of others in Section 220⁴ (Preparation and Presentation of Information). Further consideration should also be given to how best to progress these changes in light of the IESBA's Role and Mindset project.
5. Revise Subsection 114⁵ (Confidentiality) in light of the increased availability and use of personal and other sensitive data to give appropriate consideration to privacy-related matters and the need to actively protect information.

Enabling Competencies and Skills

6. Add new application material to Subsection 113 to highlight the importance of professional or "soft" skills and provide examples of the emergent technical skills needed in the digital age.

Auditor Independence

7. Strengthen the provisions in Part 4A⁶ of the Code relating to auditor independence by:
 - Considering whether Section 520⁷ (Business Relationships) or other provisions in Part 4A should be revised to address the threats to independence created by the sale or licensing of technology applications to audit clients and the use of an audit client's technology tool at arm's length in the delivery of non-audit services (NAS).
 - Revising Section 600,⁸ particularly Subsection 606,⁹ with respect to the provision of technology-related NAS, taking into account the proposals under the IESBA's NAS project (anticipated to be released for exposure in Q1 2020) and the outcomes of the Board deliberations at its December 2019 meeting.

³ Subsection 111, *Integrity*

⁴ Section 220, *Preparation and Presentation of Information*

⁵ Subsection 114, *Confidentiality*

⁶ Part 4A, *Independence for Audit and Review Engagements*

⁷ Section 520, *Business Relationships*

⁸ Section 600, *Provision of Non-assurance Services to an Audit Client*

⁹ Subsection 606, *Information Technology Systems Services*

- In relation to the concept of an “office,” considering whether Section 510¹⁰ should be revised to better capture the threats to independence created by a partner with a financial interest in an audit client when that partner practices in the same office as the engagement partner, in light of the use of modern communication technologies by firms.

5. The TWG has also developed ***Recommendations for Non-authoritative Guidance Material*** related to several of the topical areas of findings noted above. These recommendations are set out in Section IV of this report.
6. Additionally, the TWG’s ***Recommendations for Phase 2 of the IESBA Technology Initiative*** are included in Section V of this report.

¹⁰ Section 510, *Financial Interests*

II. BACKGROUND

7. The IESBA recognizes the transformational impact digital technologies, such as artificial intelligence (AI), data analytics, robotic process automation, blockchain and cloud computing, have on organizations, governments, economies and societies. These technologies are also impacting the accountancy profession with respect to the types of professional activities undertaken, as well as the tools and approaches used by PAs when undertaking professional activities.
8. In recognition of the pace and magnitude of change caused by disruptive technological innovations, the IESBA established a working group in 2018 to gain an understanding of the transformative effects of these technological trends and developments on the assurance, accounting and finance functions, and explore their ethical implications.
9. Following approval of its [ToR](#), the IESBA Technology Working Group (TWG) commenced its information gathering activities in January 2019 as part of Phase 1 of the initiative. Given the IESBA's remit, the focus of the TWG is on the ethical behavior of both PAs working in accounting firms (professional accountants in public practice) and those in businesses, the public sector or other sectors (professional accountants in business (PAIBs)).
10. During this first phase, the TWG gathered information relating to (i) AI and (ii) big data and data analytics. The IESBA agreed to focus on these technologies in Phase 1 based on its view that the impacts of these technological developments are currently the most pervasive and affect the broadest population of PAs. These areas also appear to have a more direct impact on a greater number of the Fundamental Principles (FPs).
11. In addition to conducting “desk research,” the TWG also engaged with a broad range of stakeholder groups, particularly in Europe and North America, to hear views, share knowledge and to identify issues. To date, the TWG has met with representatives from IFAC member bodies, firms, business groups, accounting software vendors, regulators and academics. See Appendix for a list of the stakeholders and outreach events conducted by the TWG in 2019.
12. To reach its findings and recommendations below, the TWG also sought views and feedback from the IESBA, the IESBA CAG, the International Auditing and Assurance Standards Board's (IAASB's) Technology Working Group (formerly Data Analytics Working Group), representatives of the former International Accounting Education Standards Board (IAESB)¹¹ as well as various IFAC committees. In particular, the IESBA and the CAG provided their input to the TWG's Phase 1 preliminary report in September 2019.

The Continuum of Artificial Intelligence Systems

13. The TWG notes the importance of recognizing that the development and use of AI systems by accountants and others vary along a continuum of different types of machine intelligence depending on the level of decision making retained by humans. This continuum ranges from *assisted* intelligence or robotic process automation where machines mimic the tasks already done by humans who continue to make decisions; to *augmented* intelligence where there is machine-human collaboration

¹¹ On August 3, 2018, the International Federation of Accountants (IFAC) [announced](#) that it was transitioning the IAESB to a new model based on a comprehensive and integrated approach to international accountancy education. In this document, reference to the IAESB includes its successor body.

in the decision-making, allowing humans to do more than they are currently capable of; to *autonomous* intelligence at the other end of the continuum where machines fully accomplish tasks and make decisions on their own without any human interventions.¹²

14. The TWG observed that the technologies being discussed by stakeholders today are more in the realms of assisted and augmented intelligence and that any widespread adoption of autonomous intelligence is unlikely to take place at least in the short to medium term. As such, the TWG's assessment of the impact of technology on the ethical behavior of PAs is focused on these first two types of machine intelligence. The TWG is of the view that the impact of autonomous intelligence on PAs may be difficult to predict and, therefore, any recommendations to the Board based on such predictions may lack sufficient evidence at this time. Active monitoring of this area is, however, important given the rapid pace and dynamic nature of technological change.

III. FINDINGS AND RECOMMENDATIONS FOR ENHANCEMENTS TO THE CODE

Building Trust: The Critical Role of Ethics and Professional Judgment in the Digital Age

15. Trust and ethics have long been associated with the accountancy profession and are also foundational elements of sustainable societies, economies, organizations and personal relationships. Many stakeholders and others have observed that trust is becoming an increasingly important currency in the digital age. Recent cases of the misuse of personal data by organizations serve as examples of the importance that trust plays and highlight the need to strengthen policies and ethical behavior around the use and protection of data.
16. Alongside the transformational and far reaching benefits of modern technologies for organizations, governments and societies are ethics issues and dilemmas, such as undue influence, biased decisions and unfair treatment, breach of privacy and threats to public health and safety. The speed at which technology works and its pervasiveness suggest there needs to be appropriate attention to ethical values in the development and application of technology in order to avoid pervasive negative ramifications of “bad” technology. These issues, if not properly addressed, can result in loss of confidence in organizations, governments and institutions and the community at large. Consequently, ethics are rising to center stage in the discussions of technology disruptions.

Broader Role to Promote Ethical Behavior

17. The Code currently recognizes a PA's role in promoting an ethics-based culture in his or her organization. As trust and ethics gain a higher profile in conversations about technology and its impact, various professional accountancy bodies have recognized the opportunity to step up and promote the profession and its members' ability to create and maintain trust. Along these same lines, the TWG believes there is an opportunity for the Code to more expressly reference a broader societal role for PAs in promoting ethical behavior beyond their current role of contributing to building public trust in the organizations and professional activities they are directly associated with.
18. Such broader role in society as champions of the importance of ethics in developing and applying technology might encompass, amongst other things, promoting an ethical culture across organizations and among business partners and third parties, influencing others to act ethically as well as holding oneself and others accountable for upholding ethical principles.

¹² <https://preview.thenewsmarket.com/Previews/PWC/DocumentAssets/476830.pdf>

19. In having a responsibility to act in the public interest, PAs have historically had a strong appreciation of the importance of public trust and in third parties having confidence in and ascribing value to their work. They also understand that adhering to a code of high ethics standards helps maintain that trust. Currently, Section 200¹³ of the Code contains application material about the expectation of PAIBs to encourage and promote an ethics-based culture in their organizations, taking into account their position and seniority within those organizations.
20. The TWG notes that in the Role and Mindset ED, the IESBA has proposed changes to recognize the wide-ranging impact PAs have in society as a result of the skills and values they bring to their work, the centrality of ethical behavior when undertaking professional activities and the role of a PA in championing ethical behavior in their organizations. Additionally, the ED proposes revisions to the description of professional behavior to specifically require a PA to behave in a manner that is consistent with the profession's responsibility to act in the public interest. The proposed ED text also contains new material in Section 120¹⁴ of the Code (The Conceptual Framework) that emphasizes the importance of an organizational culture that promotes ethical behavior in the context of PAs applying the conceptual framework.
21. As current provisions in the Code and in the proposed Role and Mindset ED primarily refer to the PA's role in the organization in which the PA carries out professional activities, the TWG is of the view that further consideration should be given by the IESBA to including new application material in Part 1 of the Code to more clearly highlight a broader societal role for PAs in promoting ethical behavior as a critical, consistent foundation for businesses and other institutions when developing and using technology. The TWG also considers that non-authoritative material on this subject would be helpful to inform and inspire PAs to act as active champions of ethical behavior in the dynamic, technology-enabled workplace irrespective of the timing or type of technological disruption.

Recommendation 1

The TWG recommends that the IESBA consider adding new application material in Part 1 of the Code to more clearly highlight a broader societal role for PAs in promoting ethical behavior as a critical, consistent foundation for businesses, firms and other organizations, particularly when developing and using technology.

Importance of Professional Judgment

22. Stakeholders have consistently cited the importance of professional judgment as business and society adapt and evolve in a world of dynamic change brought about by ongoing digital transformation.
23. New developments in AI such as deep machine learning, coupled with the availability of big data, will lead to machines that can take on ever more complex analysis and prediction. This rise of machine analysis and prediction will also generate more demand for decision-making, giving rise to enhanced opportunities to exercise human judgment.
24. Additionally, some have suggested that whilst AI can improve prediction, it is not always able to judge which outcomes are better or what is best for or in the public interest. Such decisions require

¹³ Section 200, *Applying the Conceptual Framework – Professional Accountant in Business*, paragraph 200.5 A3

¹⁴ Section 120, *The Conceptual Framework*

considering factors such as hidden costs, social trade-offs, intangible rewards, or risks that machines are currently incapable of effectively evaluating. Consequently, human judgment continues to play an important role in decision-making.

25. As technology such as deep learning continues to evolve, the value of machine prediction will also increase as machines are able to take into consideration more factors and become more accurate, quicker, and more cost effective. In this regard, the TWG notes the concept of intelligent augmentation (IA) as a different way to conceptualize the role of AI whereby humans remain at the center of the decision-making process and AI enhances human intelligence rather than replaces it. Aligned with the concept of AI, some have suggested that as the value of machine prediction increases, the value of, and need for, human judgment will also increase. The considerable benefit of combining machine prediction and professional judgment is an ability to make better decisions faster, based on more comprehensive and more accurate information.
26. As the accountancy profession evolves in the digital age and sets its path for the future, it seems clear that PAs' professional judgment will continue to play a significant role.
27. The revised and restructured Code includes new application material that provides additional guidance to the requirement for PAs to exercise professional judgment in paragraph R120.5. Such application material (paragraphs 120.5 A1 to 120.5 A3 of the Code) describes, amongst other matters, the important role professional judgment plays in applying the conceptual framework.
28. The TWG agrees with the observation that with the availability of machine-generated information comes a risk of over-reliance on AI or other forms of technology due to a tendency to favor output generated from automated systems, even when human reasoning or contradictory information raises questions as to whether such output is reliable or fit for purpose. Such tendency (referred to as "automation bias") may impair a PA's exercise of professional judgment. In recognition of this risk, the IESBA agreed to include automation bias in the proposed list of examples of bias in the Role and Mindset ED.
29. As part of its deliberations on the Role and Mindset proposals, the IESBA agreed that the Code already recognizes the importance of professional judgment to a PA's application of the conceptual framework and that no further changes to the material on professional judgment is needed.
30. Based on its work in Phase 1, the TWG does not propose any further revisions to the Code regarding the importance of professional judgment. However, the TWG is of the view that it would be helpful for non-authoritative guidance material to be developed that highlights the importance of professional judgment when carrying out professional activities in a dynamic, technology-enabled environment.

Complexities of the Professional Environment

31. PAs today find themselves working in a complex operational, legal and regulatory environment, brought on by, amongst other factors, the impact of new technologies. New technology applications, such as those combining the use of AI and big data, can produce information and perform certain tasks more efficiently and accurately than human agents. However, in order to rely on the outputs of these technology applications, PAs need to attain sufficient knowledge of the workings of the technology involved, which can often be a complex, time-consuming and arduous task. In addition to complexities of technology, the PA must also have appropriate knowledge of and adhere to an expanding array of regulatory requirements and professional standards. These factors – which often

occur concurrently – also impact employing organizations and client business operations, adding another layer of complexity to the professional activities of PAs.

32. The Code states: “Threats to compliance with the FPs fall into one or more of the following categories:”. It then sets out the definitions of self-interest, self-review, advocacy, familiarity and intimidation threats. The TWG considered at length whether these specific five categories of threats as defined are sufficient for applying the conceptual framework to identify, evaluate and address the ethics risks arising from the complex professional environment in which PAs operate. This consideration resulted from the TWG’s discussion of a potential gap in the Code related to threats to the FP of professional competence and due care caused by complexity associated with new technologies.
33. To better capture the threats caused by complex professional environments, the TWG considered a number of options and approaches to amend the Code (which are not mutually exclusive):
- Add a new category of threat (e.g., “complexity”, “self-confidence” or “pace of change” threat) in paragraph 120.6 A3, taking into account the potential flow-on impact of adding a new category of threat to the rest of Code. Upon further consideration, the TWG came to the view that adding a new category of threat might not be necessary as complexity could be captured by two of the existing categories of threat:
 - Self-interest threat in the sense that a PA does not want to invest or prioritize in the time, money and other resources needed to develop competence in new technologies or new compliance rules. The TWG is of the view that such threat exists despite the benefit and self-interest of improving one’s competence and knowledge of technology and the associated risk of becoming obsolete otherwise. It may be argued that the current description of self-interest threat in paragraph 120.6 A3 (a) already covers this type of threat.
 - Intimidation threat in the sense that a PA is deterred from acting properly because the PA feels intimidated by the complexity of certain technology applications or compliance rules. The TWG, however, is of the view that this variation of the threat is not currently covered in the existing description of intimidation threat in paragraph 120.6 A3 (e) and that expansion would be helpful.
 - Highlight “complexity” under Section 120, in a manner similar to the approach taken by the IESBA in adding application material on bias and organizational culture in the Role and Mindset ED.
 - Modify the lead-in language to paragraph 120.6 A3 of the Code so it would read less definitively (i.e., currently the language could be interpreted as if a circumstance or a situation does not fall into one of the categories listed then there is no threat to evaluate).
 - In this regard, the TWG notes in particular the AICPA Code which states that “...**many** [emphasis added] threats fall into one or more of the following seven broad categories: adverse interest, advocacy, familiarity, management participation, self-interest, self-review, and undue influence...”.
 - Furthermore, the TWG noted that the lead-in sentence to the five categories of threats in paragraph 200.3 of the Code released in March 2008 also states “...**Many** [emphasis added] threats fall into the following categories...”.

- The TWG is of the view that the Board should consider such a construct as it allows for some flexibility in how PAs can identify and address a threat such as complexity without necessarily “shoehorning” it into one of the five categories currently stated in the Code. Such fluidity is particularly useful in light of the constantly evolving professional environment in the digital age. The TWG believes that allowing for the possibility that some threats may fall outside the five categories of threats should not weaken the construct of the conceptual framework or the building block approach of the Code.
 - Sections 200 and 300¹⁵ of the Code provide examples of threats as well as the work and operating environments of employing organizations and firms as well as the operating environment of clients that might impact the evaluation of the level of a threat. The TWG is of the view that it might be helpful to include references to, or examples of, technology and the complexity of work environments in these provisions.
 - The TWG is also of the view that PAs will increasingly work with multidisciplinary teams, subject matter experts, remote teams and/or intelligent agents when performing professional activities. In this regard, the TWG is of the view that the Board should consider reviewing the Code to expand references to individuals in the Code to include machines and intelligent agents as appropriate. For instance, it may be argued that the description of self-review threat in paragraph 120.6 A3 should be updated to include not only activity performed by individuals but also by an intelligent agent that was developed and is owned by the PA’s firm or employing organization.
34. In addition to considering the items noted above that might affect the Code, the TWG believes that it would be helpful to develop non-authoritative guidance material to discuss the ethical implications of complex professional environments linked to the impact of technology.

Recommendation 2

The TWG recommends that the IESBA consider revising the Code to more effectively deal with the threats caused by the complexity of the professional environment in which PAs perform their professional activities, giving consideration to options such as those described in paragraph 33.

Suitability of the Fundamental Principles for the Digital Age

Inter-related Nature of the Impact of Technology

35. While the individual FPs are defined broadly and in a way that generally addresses technology-related risks, the TWG believes that the impact of new technology developments cuts across all five FPs in an interrelated manner. As a result, missing or not fully understanding the threat to complying with one FP resulting from the impact of technology might also lead to non-compliance with another FP. This “combined” effect, along with the fast pace of work that technology enables, suggests that it is especially important for a PA to consider the inter-related nature of the impact of technology on compliance with the FPs.
36. The proper consideration of the potential impact of machine bias associated with the use of AI provides an example of this pervasive, inter-related impact. Whilst traditional robotic process

¹⁵ Section 300, *Applying the Conceptual Framework – Professional Accountants in Public Practice*

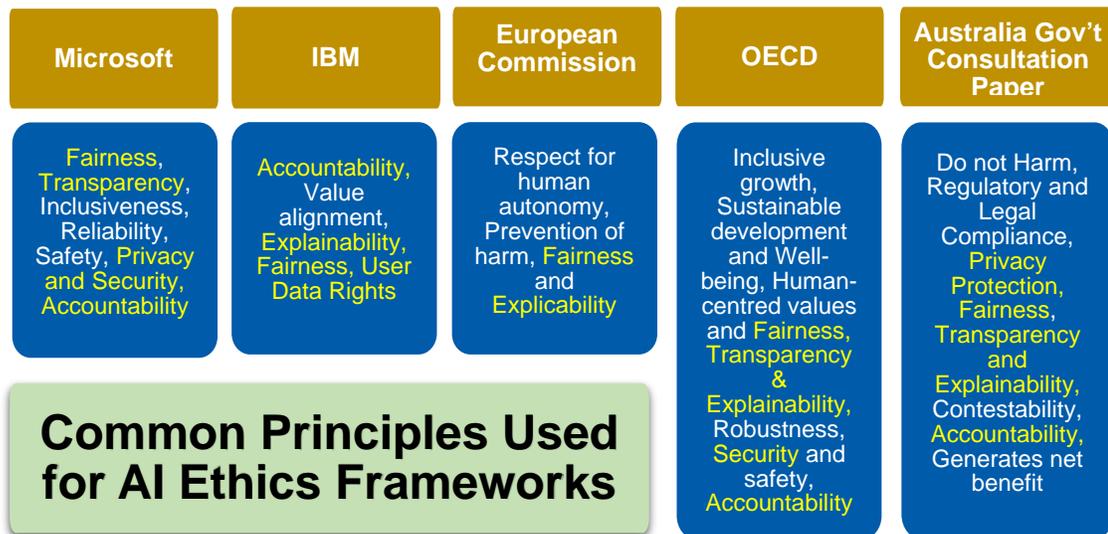
automation focuses on repetitive, rule-based and high-volume activities (process driven), AI technology such as machine learning simulates human intelligence and is often able to make accurate predictions through the analysis of large volumes of data (data driven). However, the accuracy of AI predictions might be affected by bias that could be either present in the datasets consumed by the AI system, or in the algorithms that reflect biases of the human AI system's developers and coders, and/or in the interpretation of the system's outputs. Consequently, a PA needs to think concurrently and holistically about compliance with the FPs in a technology-enabled organizational environment:

- *Objectivity* could be impaired when undue reliance is placed on AI system outputs, especially when such output has been generated from biased data or information that might compromise a PA's professional judgment.
- In order to avoid undue reliance, the PA must have the appropriate *professional competence and due care* to sufficiently understand and evaluate the business and technical aspects of how AI system outputs were generated. Whilst a PA is not expected to have the same level of knowledge and skills as a data scientist, it is important that the accountant is capable of asking appropriate questions to ensure that high quality information is being used.
- If the PA knew or should have known that the AI system's outputs were not objective, then this implies a lack of fair dealing or truthfulness, namely *integrity*.
- Furthermore, since AI systems are fueled by consuming of large amounts and different types of data, privacy considerations arise and can heighten the level of threat to complying with the FP of *confidentiality*.
- Lastly, the consequences of one or more such lapses in compliance with these FPs may also discredit the profession under the FP of *professional behavior*, particularly in light of the increasing public expectations for trust in the digital age.

37. The TWG does not believe further enhancement to the Code to highlight the pervasive and interconnected nature of the impact of technology is necessary. Instead, the TWG is of the view that non-authoritative material on the overall impact of technology in terms of the FPs, including the example of machine bias, would be helpful to stakeholders.

Key Principles in AI Ethics Frameworks

38. In recognizing trustworthiness as a key factor to the acceptance of AI, many governments, transnational organizations and corporations have been proactively proposing and implementing ethics frameworks for the development and application of AI. Such organizations are also committed to developing AI ethics frameworks in order to maximize the potential of AI in bringing positive transformations to society and to minimize the risk of significant societal damage.
39. Given the importance of trust to the brand and the expectations the public has of PAs, the TWG compared the ethics principles embodied in a number of published AI ethics frameworks to the descriptions of the FPs and related application material in the Code.



40. In reviewing various AI ethics frameworks and the ethics principles embodied in them, the TWG observed that the concepts of fairness, transparency, explainability, accountability and privacy/confidentiality are consistently included. As a result, the TWG considered whether, and if so how, these concepts are covered in the Code and whether there might be a need or benefit to more explicitly relate these ethics principles to the FPs. A summary of the TWG's deliberations and related recommendations are set out in paragraphs 41 to 63 below.

Fairness

41. The TWG is of the view that there is a public expectation for a PA to act fairly when undertaking professional activities. The TWG considers that the application of the concept of fairness has the following ethical implications for a PA:
- A PA must be impartial and not be biased against any individuals or organizations in the PA's decisions or actions, including presentation of information. In this regard, the PA must not cherry-pick datasets. (FP: Objectivity)
 - A PA must include all relevant known information when making decisions and have the necessary competence to identify and understand the information required to make such decisions. (FP: Professional Competence and Due Care; and Professional Judgment)
 - To act unfairly might also impact the good reputation of the profession. (FP: Professional Behavior)
42. Currently in the Code, the FP of integrity alludes to the concept of fairness by requiring a PA to be straightforward and honest as well as explaining that the principle implies fair dealing and truthfulness. However, some may perceive there is no requirement for a PA to act fairly. In addition, there is no guidance on what that concept means in the context of undertaking professional activities.
43. Upon deliberation, the TWG is of the view that further enhancement to the Code to include the concept of fairness is not necessary for the following key reasons:

- It may be argued that compliance with the FPs and proper application of the conceptual framework already provide the necessary assurance that a PA will act fairly.
- The proposed revisions to the Code in the Role and Mindset ED, such as the inclusion of “having an inquiring mind” and guidance material on bias under Section 120, will further reduce the risk of a PA acting unfairly.
- The TWG also recognized that the term “fairness” is a value-laden concept which might make it difficult to develop a global view on how the concept should be applied.

Transparency

44. Digital transformation in business and society has resulted in a greater call for, and public expectation that, businesses and organizations be transparent in their dealings with customers and other stakeholders. With large amounts of individuals’ private data being collected and used by businesses, governments and other organizations, there is greater public expectation and demand on these entities to demonstrate that individual privacy is being respected. Shareholders are also increasingly asking companies to demonstrate their commitment to corporate social responsibilities in addition to delivering the bottom line. As such, companies are expected to be more transparent about their strategies and performance in addressing these broader social and environmental issues. In order to build trust, organizations must find ways to become more transparent to their stakeholders.
45. The Code currently contains several provisions that promote transparency without using the term specifically. Examples include requiring PAs and firms to disclose certain information to relevant parties under certain circumstances in Subsection 114. Under the FP of professional competence and due care, a PA is required to make certain parties such as clients and employing organizations aware of the limitations inherent in the PA’s services or activities (see paragraph R113.3). Additionally, disclosure of the nature of a conflict of interest in Sections 210¹⁶ (Conflicts of Interest) and 310,¹⁷ (Conflicts of Interest), as well as disclosure of fee-related information to those charged with governance of an audit client in Section 410¹⁸ (Fees) are additional examples of “transparent” actions to be taken by a PA under the provisions of the Code.
46. Given the importance of trust and transparency in the digital age, the TWG is of the view that more express language on a PA’s responsibility to be transparent in their professional activities may be necessary in the Code. In this regard, the TWG notes that both the IESBA’s NAS and Fees projects have referenced the importance of transparency from an independence perspective and as a result have developed proposals that firms disclose information relating to the provision of NAS and fees charged to audit clients to those charged with governance and to the public.
47. Consistent with the concept of transparency underpinning these NAS and Fees proposals, the TWG has formed the view that in times of technological or other types of change and uncertainty, a PA has an overarching *responsibility* to be transparent when carrying out professional activities, and this responsibility should be more prominently featured in the Code. In determining the circumstances and level of appropriate transparency, a PA needs to exercise professional judgment. Furthermore, transparency serves to support compliance with the fundamental principles. Transparency

¹⁶ Section 210, *Conflicts of Interest*

¹⁷ Section 310, *Conflicts of Interest*

¹⁸ Section 410, *Fees*

concerning how decisions are reached, the processes applied, how the information the PA relied on has been derived, and for auditors, how AI is used in audit work are examples of where potential impacts of technology on the ethical behavior of PAs can be addressed by transparency.

48. Based on these considerations, the TWG recommends that the IESBA consider adding new application material in Subsection 113 to explain a PA's *responsibility* to be transparent which is not currently expressly stated in the Code, being mindful of circumstances that impact the extent of transparency that may be appropriate (e.g., in an audit, the type and timing of audit procedures).
49. The TWG also considered that the concept of transparency ties in with professional judgment as they both are important elements of the decision-making process. A PA should be able to demonstrate how professional judgment has been exercised and the robustness of a decision. The TWG believes that it would be helpful that the relationship between transparency and professional judgment be highlighted as part of non-authoritative material.

Recommendation 3

The TWG recommends that the IESBA consider revising Subsection 113 by expanding a PA's *responsibility* to be transparent which is not currently expressly stated in the Code. Circumstances that impact the extent of transparency that may be appropriate (e.g., in an audit, the type and timing of audit procedures) would need to be considered.

Explainability

50. The TWG is of the view that a PA should have the requisite knowledge and skills to explain how they derive a decision or the decision-making process in such a way that will establish trust in the robustness of that decision. As machine algorithms become more sophisticated over time and begin to operate like a "black box", it is important that PAs find ways to explain their decisions without the need to dissect the algorithms.
51. The TWG notes that the FP of professional competence and due care in Subsection 113 requires a PA to attain and maintain the necessary professional knowledge and skills which includes having a continuing awareness and understanding of the relevant technical, professional and business developments. The TWG is of the view that the material in Subsection 113 sufficiently covers the need for PAs to have the requisite knowledge and skills to explain their decisions and that revisions are not necessary.

Accountability

52. The TWG believes there is a public expectation that a PA is accountable for the decisions, actions or outcomes for which the PA has due responsibility. Accountability goes beyond just having someone to blame when things do not go as planned, and sanctions when someone is found at fault. As highlighted in a recent report by the Institute of Chartered Accountants in England and Wales (ICAEW) titled [New technologies, ethics and accountability](#), the right accountability framework serves as a driver to acting appropriately in the moment to avoid shame and embarrassment at a later date.
53. As the discharging of professional activities becomes more complex and services become more integrated, both PAs in public practice (PAPPs) and PAIBs are becoming more reliant on the work of subject matter experts as well as the outputs from technologies such as AI systems. Whilst an intelligent agent does not (yet) have any legal, ethical or moral responsibility, reliance on the work

produced by such an agent is in many ways no different than a PA relying on the work of a human agent such as a junior staff member or a subject matter expert.

54. In considering the appropriate accountability of PAs when operating in a technology-enabled professional environment, the TWG has formed the view that PAs must (i) be willing to be held accountable for their work – regardless of whether other human or intelligent agents contribute to their conclusions and decision-making processes, and (ii) take the necessary steps to ensure that they properly discharge their duties. In reaching its view, the TWG also acknowledges that in today’s complex work environment whereby PAs are relying more and more on decisions by machines, accountability might need to be shared with other human agents that have some causal connection with the decision such as the technology developers.
55. With regards to having a willingness to be held accountable, the TWG considers that this concept aligns best to the FP of integrity in Subsection 111 as this principle requires a PA to be straightforward and honest. In this regard, the TWG has also taken into consideration the proposed new material in the Role and Mindset ED on having the determination to act appropriately when confronting dilemmas or difficult situations. The TWG is of the view the whilst the need for willingness to accept responsibility may be broadly covered in the proposed new material, there is room for potential enhancement to the Code to strengthen this aspect of accountability in the Code.
56. The FP of Professional Competence and Due Care set out in Subsection 113 of the Code includes the requirement that a PA take the necessary steps to fulfil the PA’s responsibilities (see paragraphs 113.1 A3 to R113.3). The TWG is of the view that these paragraphs might be further strengthened in order to more clearly explain the concept of accountability in light of the increasing use of external experts and intelligent agents.
57. The TWG has also reviewed the material relating to relying on the work of others in paragraphs R220.7 to 220.7 A1 of the Code as well as the proposed revisions to paragraph R220.7 in the Role and Mindset ED. The TWG noted that in approving the proposed revisions to paragraph R220.7, the IESBA agreed to remove a proposed reference to reliance on technology suggested by the Role and Mindset Task Force on the grounds that the TWG is better placed to consider the inclusion of any such references in these two paragraphs. Having reflected upon the matter, the TWG is of the view that the IESBA should consider including material on reliance on technology in paragraphs R220.7 and 220.7 A1.
58. The TWG also noted that there is no equivalent section or material on preparing and presenting of information that specifically addresses a PA’s reliance on the work of others in Part 3 of the Code. In considering how the applicability provisions in paragraphs 200.4(b) and R300.5 to 300.5 A1 would apply in these situations, the TWG has concluded that any review of the applicability provisions may be best addressed as part IESBA’s implementation review of the revised and restructured Code in the future.

Recommendation 4

The TWG recommends that the IESBA consider strengthening the concept of accountability in the Code by:

- Including new material in Subsection 111 on a PA’s willingness to accept responsibility. This would need to take into account whether this aspect of accountability is already covered sufficiently in the

proposed new material in Subsection 111 under the Role and Mindset ED.

- More clearly explaining the concept of accountability in Subsection 113 in light of the increasing use of external experts and intelligent agents.
- Including appropriate reference to technology in the provisions relating to reliance on the work of others in Section 220. Further consideration should also be given to how best to progress these changes in light of the IESBA's Role and Mindset project.

The TWG also recommends that the IESBA consider, as part of its strategic commitment to undertake an implementation review of the revised and restructured Code, the effectiveness of the “applicability provisions” set out in paragraphs 200.4(b) and R300.5 to 300.5 A1 with regards to Section 220.

Privacy and Confidentiality

59. The concept of privacy is closely related to the concept of confidentiality. In the context of information, privacy relates to the legal right of a person protecting, and controlling access to, his or her personal information or data. In contrast, confidentiality refers to how personal information or other information that need to be kept confidential (such as commercially sensitive information) will be protected from unauthorized access.
60. The TWG has heard that when considering how privacy should be protected, due consideration must be given to how the ownership of personal information is viewed in different jurisdictions. Some stakeholders have noted that whereas some jurisdictions consider that the ownership of private information rests with individuals, other jurisdictions view private information to be owned by corporations or the State.
61. In today's “information” economy where data are considered by many as a new form of asset, the sharing and use of large amounts of digital data have become accepted (and somewhat expected) in order to create value for businesses, employees, customers and clients. Technology has also allowed data to proliferate and be transferred more easily and quickly. With the flow of large data sets that often include personal and other sensitive information, the protection of confidential information becomes a significant matter for consideration by firms and other organizations that have access to these datasets.
62. With the growing availability and use of big data, there is also a need and opportunity for development and implementation of proper data governance and frameworks. The TWG has heard from some stakeholders that the profession is well placed to be a contributor to the discussion of the need for effective data governance frameworks given its traditional role in handling financial and other sensitive data. See also discussion on Section 350¹⁹ of the Code (Custody of Assets) relating to custody of assets in paragraph 91 below.
63. In reviewing the material on the FP of confidentiality set out in Subsection 114 of the Code, the TWG has formed the view that the Subsection should be further enhanced. The TWG noted that, amongst other matters, the following may require further consideration by IESBA:
- Whether the language and terminology should be updated in order to take into consideration new risks such as the use of social media, the use of cloud storage, and other changes to the

¹⁹ Section 350, *Custody of Assets*

concept of confidentiality. When considering how Subsection 114 can be modernized, it might be helpful to also review existing data governance principles and privacy laws.

- Whether the material should be less descriptive and be further summarized into higher level principles to avoid the risk of becoming obsolete.
- Whether Subsection 114 should cover other aspects of data and information stewardship beyond “use” and “disclosure.” Other stages of a typical data management life cycle control framework include collection, storage, transmission, processing and destruction.
- Whether terms such as “data,” “information” and “confidential information” should be defined.
- Whether there should be a scalability concept included in the Code whereby the actions that need to be taken to protect confidential information depend on the sensitivity of the information (e.g., greater sensitivities related to health, racial, biometric information and religious beliefs).
- In addition to a responsibility to not disclose confidential information, whether there should also be a responsibility to ensure such information is protected from cyberattack or other forms of hacking. The TWG is of the view that any proposals to strengthen the FP of confidentiality should be developed in conjunction with the information gathering on the topic of cybersecurity and cybercrime.
- Whilst the material is sufficiently broad to include protection of an individual’s right to privacy, the TWG considered that it might be appropriate for the Code to expressly include this concept as a reminder to PAs of its importance.
- Whether PAs should be permitted, and potentially encouraged or required, to disclose more information as the public expectation for transparency continues to increase in the digital age.

Recommendation 5

The TWG recommends that the IESBA consider revising Subsection 114 in light of the increased availability and use of personal and other sensitive data to give appropriate consideration to privacy related matters and the need to actively protect information.

Enabling Competencies and Skills

64. As the capability and capacity of new technological developments continue to grow, more and more existing accounting roles and functions will be replaced by machines and automation whilst opportunities for other roles such as consultancy and advice will open up. This evolution means that the accountancy profession will need to rethink the competences and skills required of PAs in the future. In order to work alongside new technologies, there seems to be a consistent acknowledgement by stakeholders that PAs need to upskill themselves on understanding how these technologies work and to keep this knowledge current in the face of ongoing technological advancements.
65. The TWG has also observed a general view amongst stakeholders that in addition to having the requisite knowledge about various technologies and their application, there will be a greater need for PAs to develop their professional or “soft” skills. Stakeholders have suggested that the pervasive impact of technological breakthroughs is a key driver for how the accountancy profession is changing, which in turn creates a need for new knowledge and skills. In its report [*Professional Accountants –*](#)

[the Future: Drivers of Change and Future Skills](#), the Association of Chartered Certified Accountants (ACCA) identified the spread of digital technologies as one of the key driving forces that will have the most impact on PAs and financial professionals, including the skills that are required of them. Technology-related external factors such as the development of intelligent automated accounting systems, adoption of cloud computing and data mining and the use of social media have been identified as key factors that will have the most impact on the profession. In order to adjust to these changes, PAs will need to strengthen their integration of technical skills with professional skills in areas such as emotional intelligence, ethics, communications, agility and leadership.

66. In its report [The Future of Talent: Opportunities Unlimited](#), Chartered Accountants Australia and New Zealand (CAANZ) observed that the accountancy profession rated its top four very important skills for the future as: problem solving, communication skills, collaboration, and the ability to work with data and the latest technology and systems. This report also suggests that this is a reflection of the increased use of technology and move from lower level processing work, which in turn allow PAs to focus on value-add work such as strategic advice.
67. The TWG also observed from discussions with stakeholders that having the right mindset is an important component of success for a PA in the digital age. Such a mindset ranges from one that adapts to new technology to expanding the PA's mindset from a compliance-oriented one to an advisory-oriented one. Of note, some have highlighted the importance of a growth mindset given the pace of change in the age of digital transformation. Whilst there are various definitions of "growth mindset," each of them includes similar concepts, such as a belief that abilities and acumen can be developed, and "the capacity to feel comfortable in one's ability to overcome obstacles and challenge one's own identity, and to extend oneself into new areas."²⁰ These concepts align with an earlier ACCA report, [Ethics and Trust in a Digital Age](#), which highlights the need for continuous learning and the importance of the principle of professional competence and due care in a digital age.
68. Currently, the fundamental principle of professional competence and due care as set out in Subsection 113 of the Code requires PAs to have certain levels of professional knowledge and skill that are based on current technical and professional standards and relevant legislation. Paragraph 113.1 A1 also highlights the importance of exercising sound judgment when applying professional knowledge and skills. Further, paragraph 113.1 A2 provides guidance on how professional competence can be maintained, which includes a continuing awareness and understanding of different forms of development. In this regard, the TWG noted that the Role and Mindset ED has proposed that technology-related developments be added to this paragraph.
69. In light of the growing importance of professional skills for PAs of the future as a result of the pervasive impact of technology on the profession and businesses, the TWG is of the view that Subsection 113 should provide new application material about the soft skills aspect of professional competence. The TWG has considered the option of referencing the appropriate International Education Standard (IES) issued by the IAESB in Subsection 113. However, the TWG determined that this may not be the most suitable approach given that the IESs are aimed for IFAC member bodies instead of individual professional accountants. Instead, the TWG has formed the view that further guidance material that better incorporates the application of professional skills into the concept of professional competence should be added to Subsection 113. In this regard, the TWG notes that IES 3, [Initial Professional Development – Professional Skills \(Revised\)](#), describes "professional skills" as "(a) intellectual, (b)

²⁰ ACCA, *Emotional Quotient in a Digital Age*, 2018

interpersonal and communication, (c) personal, and (d) organizational skills that a professional accountant integrates with technical competence and professional values, ethics, and attitudes to demonstrate professional competence.”

70. The TWG also considers that non-authoritative material on the subject of professional competence, highlighting the relevant considerations pertaining to technology, would be helpful to stakeholders.

Recommendation 6

The TWG recommends that the IESBA consider adding new application material to Subsection 113 to highlight the importance of professional or “soft” skills and provide examples of the emergent technical skills needed in the digital age.

Auditor Independence

71. The TWG research has confirmed that firms of varying size are investing in the development and use of new technologies related to the performance of audits and the provision of non-assurance services. Additionally, applications developed by firms to improve operational efficiency or control environments, for example, are being sold or licensed to clients or other organizations. Some of these services and applications could result in new threats to independence that require further consideration by the Board.
72. The TWG believes it is helpful to consider the impact of technology on auditor independence based on how the technology is used by the auditor and/or provided to a client:
- Is it a tool used by firms to assist with the performance of an audit?
 - Is it a software application developed by the audit firm that is sold or licensed to an audit client?
 - Is it a technology-related NAS, such as data analytics or modeling, that is provided to an audit client?

Technology Tools Used in an Audit

73. With respect to the use of tools by firms exclusively to assist with performing audits, such as audit sampling tools, the TWG is of the view that when firms are using these tools primarily to make audits more efficient and to improve audit quality, such use does not raise any new threats to independence.

Technology Applications Sold to Audit Clients

74. Some firms are developing technology solutions as commercial products for sale or licensing to third parties, such as blockchain-based business applications. The TWG is of the view that the sale or licensing of these applications to audit clients might create threats to independence that would require evaluation by the firm. The TWG believes these transactions might not be considered non-assurance services, and are therefore not sufficiently addressed by the Code. The TWG believes the sale or licensing of these commercial products creates a business relationship between the firm and the audit client purchasing the application, and might be best addressed through revisions to Section 520.²¹ This section currently provides guidance for goods and services purchased from an audit client by a firm, a network firm, an audit team member or any of that individual’s immediate family.

²¹ Section 520, *Business Relationships*

Any provision of ancillary services relating to the sale of these products such as implementation or ongoing maintenance of the application should be dealt with under Section 600 and related subsections. The TWG also considered the situation of a firm using an audit client's technology tool at arm's length in its delivery of a NAS and is of the view that further consideration should be given by the IESBA to determine if these circumstances create close business relationships to be dealt with under Section 520.

Provision of Technology-related Non-assurance Services

75. The growing market demand for technology-related services and interest of firms in providing such services to their clients have created a heightened awareness of potential independence issues among regulators and other stakeholders.
76. Although the scope of the project initially undertaken by the NAS Task Force was to review all of Section 600 and related subsections of the Code, the Board agreed at the September 2019 meeting that, beyond proposed refinements to subsection 606, any further revisions to modernize the NAS sections of the Code in relation to technology would be developed as part of the IESBA's Technology Initiative.
77. In response to this development and in order to formulate some initial high-level directional comments for the Board to consider going forward, the TWG reviewed various potential NAS technology-related revisions in Section 600 (most specifically to Subsection 606) prepared by the NAS Task Force over the course of their work up to the then latest available versions. Based on this review, the TWG discussed with the NAS TF chair its view that rather than making any technology-related changes to these sections in the NAS ED scheduled to be voted on at the December 2019 meeting, it would be more beneficial to stakeholders if the impact of technology relating to NAS be addressed holistically – and as quickly as possible – in the IESBA's 2020 Technology Initiative work. The NAS TF chair indicated no objection to this general approach pending clarification of some particular language details to be finalized by the NAS Task Force in the ED and accompanying Explanatory Memorandum.
78. The TWG suggests that the following broad considerations be kept in mind in the development of any proposed new material to the Code:
 - Factors that should be taken into consideration when evaluating the level of threats including but not limited to:
 - The use and purpose of the service
 - The degree of reliance that will be placed on the output of the particular service as part of the audit
 - The extent to which the firm or network firm retains access to the underlying data relating to the service provided
 - The location and accessibility of the technology
 - Responsibility for ongoing monitoring and maintenance
 - The categories of threats to independence that could be created through the provisions of technology-related services such as hosting and under what circumstances would the provision of these services become management responsibilities

- Specific considerations for engagements when a technology solution involves both services and products to an audit client
- The implications created by audit firms selling technology-related software products or tools

Modernization of Terms and Concepts

79. As part of its review of Part 4A of the Code, the TWG considered whether the definition of independence itself might require revision in light of the impact of technology on firms and auditors. Ultimately, the TWG formed the view that the two components of independence – independence of mind and independence in appearance – and their descriptions in Part 4A of the Code remain relevant and do not require revision at this time.
80. The TWG also considered whether certain terms and concepts and their uses in Part 4A might need to be updated in light of the impact of the digital transformation. The results of this analysis are described below.

Office and Workforce Mobility

81. Given the increasing use of virtual or remote offices by PAPPs and firms, the TWG considered whether the term “office” should be updated as used in Sections 410 and 510. The Code defines “office” as “a distinct sub-group, whether organized on geographical or practice lines.” In this regard, the TWG considers that the current definition sufficiently covers the use of virtual or remote office.
82. In reviewing the use of the term “office” in Section 410, the TWG noted that it is in the context of the fee dependency provisions. The TWG formed the view that use of the term in this context does not require any further revision as the aggregation and measurement of revenue by geographic or practice lines is generally not impacted by whether a PAPP is able to work virtually as a consequence of using remote technology connections or other technology tools.
83. With regards to Section 510, the TWG notes that the term “office” is used in the context of financial interest held by a firm, network firm, team members and others. In particular, paragraph R510.4(c) prohibits the holding of a financial interest or an indirect financial interest in an audit client by any “other partner in the office in which an engagement partner practices in connection with the audit engagement, or any of that partner’s immediate family.” This requirement is based on the notion of identifying individuals who might have the ability to influence the engagement partner or the audit engagement and might have the ability to obtain information related to the engagement.
84. Paragraph 510.4 A1 provides further guidance on how to determine the office of the engagement partner. The use of “office” in this paragraph appears to focus on physical location where a partner can exert undue influence over an engagement partner in the same office location, thus impairing independence, at least in appearance. The TWG is of the view that the IESBA should consider if this idea of physical influence continues to be appropriate. With advancements in communication technologies, a partner who holds a financial interest in an audit client may have the ability to influence an engagement partner or an audit engagement without being assigned the same physical office of the engagement partner. Further, that partner may also be able to gain access to sensitive information without being in the physical office. Also, with advancements in workforce mobility, an engagement partner may be able to consistently perform their responsibilities without accessing their physical office, thereby limiting the extent of their relationships with other partners from that office.

85. Accordingly, the TWG is of the view that the IESBA should consider revising Section 510 to better capture the threats to independence created by a partner with such a financial interest in light of the use of modern communication technologies by firms.

Financial Interest, Cryptocurrencies and Blockchain

86. The Code currently defines financial interest as “an interest in an equity or other security, debenture, loan or other debt instrument of an entity, including rights and obligations to acquire such an interest and derivatives directly related to such interest.”
87. The TWG briefly discussed whether the concepts of financial interests as used in Subsection 510 (Financial interests) and “bank and similar institution” in Subsection 511 (Loans and Guarantees) require revision to capture cryptocurrencies and the use of non-traditional mechanisms, such as blockchain, to transfer funds.
88. As the scope of Phase 1 is directed towards AI and data/data analytics and sufficient work has not yet been undertaken on the impact of cryptocurrencies and blockchain, the TWG recommends that a further review of these concepts and potential impacts on the Code be included as part of information gathering and analysis in the next phase of the IESBA’s Technology Initiative.

Data as Asset

89. Organizations are increasingly recognizing data and information as assets with strategic value, and are taking steps to maximize their monetization, such as the appointment of a chief data officer and the development of information strategies.
90. Paragraph 400.8 of the Code states that one of the factors to be taken into consideration in determining whether an entity should be treated as a public interest entity is the nature of the business, such as the holding of assets in a fiduciary capacity for a large number of stakeholders. In an era of cloud providers, shared technology infrastructure providers, cryptocurrency exchanges, and data protection companies on which the public and the government rely, the TWG considered whether the holding of assets in a fiduciary nature for a large number of stakeholders would (or should) include the holding of data or intellectual assets. The TWG is of the view that this issue might be best addressed in the upcoming IESBA project on defining public interest entities.
91. The TWG has also considered the potential impact of data as assets on Section 350 of the Code, which is focused on financial and physical assets. The TWG discussed if Section 350 should be broadened to include the custody of not only financial and physical assets but also data as part of a PA’s ethical responsibility towards data governance. The Task Force considered whether, alternatively, a new Section should be developed to deal with custody or handling of client data because of ethical considerations unique to the nature of data as assets. The TWG suggests that a further review of Section 350 and data governance be included as part of the next phase of the IESBA Technology Initiative.

Routine and Mechanical Tasks

92. The TWG considered whether the term “routine and mechanical” as used in Subsections 601²²

²² Subsection 601, *Accounting and Bookkeeping Services*

(Accounting and Bookkeeping Services) and 602²³ (Administrative Services) should be amended in light of the increasing use of automation tools which take advantage of the capacity for machines to take on routine tasks with greater speed and accuracy than humans. Consideration was also given to the nature of machine learning, which enables machines, over time and when programmed to do so, to learn from the data it processes and thereby take on attributes akin to applying human judgment.

93. Subsection 601 explains “routine and mechanical” accounting and bookkeeping services as requiring “little or no professional judgment.” It also provides a list of examples of such services such as “calculating depreciation on fixed assets when the client determines the accounting policy and estimates of useful life and residual values.” Subsection 602 describes administrative services as involving the assistance of clients with their routine or mechanical tasks within the normal course of operations. The Subsection also provides examples of administrative services.
94. The TWG takes the view that whilst the automation of a task might cause that task to become “routine and mechanical,” it does not necessarily mean that a firm or network firm should be permitted to perform that task for its audit client in accordance with Subsections 601 and 602. In this regard, the TWG believes that the litmus test of whether a task is considered an accounting or bookkeeping service or an administrative service is whether the task requires little or no professional judgment and not whether the task can be executed in a routine and mechanical manner.
95. Accordingly, the TWG is of the view that the term “routine or mechanical” should be removed from Subsections 601 and 602 to focus on the level of professional judgment used in performing a task and to avoid any confusion about the nature of the services that might be permitted under these subsections with the continued evolution of automated services. The TWG has conveyed its view to the NAS Task Force for its consideration as it finalizes its proposals to the Board for the December 2018 IESBA meeting.

Long Association

96. With respect to long association, the TWG is of the view that familiarity with a client’s information technology systems might create a familiarity threat in some circumstances. In this regard, the TWG has considered whether the list of factors that are relevant in evaluating the level of familiarity and self-interest threats in relation to an audit client in paragraph 540.3 A3 (b)²⁴ should be expanded to include a reference to technology, such as the nature and complexity of the audit client’s information system that affects the accounting records or financial statements.
97. The TWG considers that this potential issue may be best addressed as part of the IESBA’s long association implementation review in due course.

Independence for Assurance Engagements Other Than Audit and Review Engagements

98. The TWG also conducted a review of Part 4B²⁵ of the Code as part of its review of the Code’s International Independence Standards. Based on this review, the TWG did not identify any additional

²³ Subsection 602, *Administrative Services*

²⁴ Section 540, *Long Association*

²⁵ Part 4B, *Independence for Assurance Engagements Other Than Audit and Review Engagements*

issues beyond those already cited elsewhere in this report. It is anticipated that any subsequent revisions to Part 4A will be carried through to Part 4B as conforming amendments as appropriate.

Recommendation 7

The TWG recommends that the IESBA consider strengthening the provisions in Part 4A of the Code relating to auditor independence by:

- Considering whether Section 520 or other provisions in Part 4A should be revised to address the threats to independence created by the sale or licensing of technology applications to audit clients, and the use of an audit client’s technology tool at arm’s length in the delivery of NAS.
- Revising Section 600, particularly Subsection 606, with respect to the provision of technology-related NAS, taking into account the proposals under the IESBA’s NAS project that are anticipated to be released for exposure in Q1 2020 and the outcomes of the Board deliberations at its December 2019 meeting.
- In relation to the concept of an “office,” considering whether Section 510 should be revised to better capture the threats to independence created by a partner with a financial interest in an audit client when that partner practices in the same office as the engagement partner, in light of the use of modern communication technologies by firms.

The TWG also recommends that the IESBA consider, as part of its strategic commitment to undertake an implementation review of the Long Association provisions, if the list of factors in paragraph 540.3 A3 (b) of the Code should be expanded to include a reference to technology, such as the nature and complexity of the audit client’s information system that affects the accounting records or financial statements.

IV. RECOMMENDATIONS FOR NON-AUTHORITATIVE GUIDANCE MATERIAL

99. The TWG recommends the development of non-authoritative guidance material covering various topics, some of which may also be related to areas where recommendations have been made for potential revisions to the Code. Determining the most appropriate format of each piece of guidance material will depend on factors such as the targeted audience, nature and complexity of the topic, existing provisions in the Code, and resources available to draft, review, publish and monitor materials published for their usefulness and need of update. Formats that would be suitable may include:

- TWG Updates/Communiques
- Thought leadership
- Other papers or reports (e.g. consultation paper or discussion paper)

100. The TWG has identified four potential topics for development over the next 12 -18 months:

	Topic	Aim	Targeted Audience
1	Impact of technology	<ul style="list-style-type: none"> • To <i>educate</i> stakeholders on the pervasive nature of technology and its inter-related impact across all the fundamental principles. The publication may include 	Regulators, NSSs and PAOs

	Topic	Aim	Targeted Audience
		discussions on the impact of machine bias as an example, relationship between AI ethics principles and the FPs as well as the complex work environment in a digital age.	
2	Leadership in promoting ethical behavior	<ul style="list-style-type: none"> To <i>educate</i> and to <i>motivate</i> PAs about promoting an ethics-based culture and how they can contribute to building public trust, using examples/scenarios and taking into consideration its implications in different jurisdictions 	PAOs and individual PAs
3	Professional Competence	<ul style="list-style-type: none"> To <i>educate</i> stakeholders about the importance of keeping a PA's competence levels and skills up to date, the importance of soft skills and having the right mindset in a digital age. The IESBA may consider a joint publication with IFAC in the context of IFAC's new education initiative. 	PAOs, firms, higher education institutions
4	Confidentiality	<ul style="list-style-type: none"> To <i>educate</i> and <i>inform</i> stakeholders about maintaining confidentiality in a digital age and how related concepts such as data governance are expressed in the Code. 	PAs

101. The TWG suggests developing the material in consultation with subject matter experts or in collaboration with other bodies such as professional accountancy bodies or international/national standard setters.
102. The TWG notes that the development of any recommended guidance material may also be considered as part of the collaboration efforts between IFAC and the IESBA regarding adoption and implementation of the Code.

V. RECOMMENDATIONS FOR PHASE 2 OF THE IESBA TECHNOLOGY INITIATIVE

103. The TWG recommends the next phase of the IESBA Technology Initiative move forward in Q1 2020 with two distinct work streams, each with a different focus and remit:
- a) A **formal project and related Task Force**, the objectives of which are to consider potential enhancements to the Code as set out in Section III of this report. This project will adhere to appropriate standard-setting due process protocols for any revisions to the Code that warrant the solicitation of public comment.
 - b) A **Technology Working Group**, which would be responsible for:
 - Information gathering and analysis of technologies beyond AI and data/data analytics, including identification of suitable academic research.
 - Contributing to the development of non-authoritative guidance material as stated in Section V of this report in accordance with processes agreed between IFAC and the IESBA.

- Coordination with the IAASB's Technology Working Group to identify and manage matters of mutual interest.

104. In recommending this approach for Phase 2 work, the TWG believes the IESBA Technology Initiative would be best served in terms of speed and effective use of the IESBA's resources if a Working Group leads the initial research and identification and analysis of potential ethical issues arising from the use of a particular technology or its application. A Task Force could then pick up on findings from the Working Group and lead a focused standard-setting component of the Technology Initiative to ensure it progresses in a timely fashion. This dual work stream approach would also allow for some flexibility by the Working Group in topics it pursues in its research given the dynamic nature of technology and potential impact it has on the ethical behavior of PAs.

Information Gathering and Analysis

105. In the absence of additional input from the Board, stakeholders or current developments in the marketplace, the TWG recommends the following technology-related topics be considered as priorities for Phase 2:

- Blockchain, Cryptocurrencies and Initial Coin Offerings
- Cyber-crime and Cyber-security
- Data governance

106. The TWG will leverage the lessons learnt from its Phase 1 approach to accelerate its information gathering and analysis as well as the completion of findings and recommendations. The TWG will also consider the option of bringing together multidisciplinary stakeholders such as technologists, subject-matter experts and academics to discuss specific topics such as blockchain.

107. With respect to who should continue on with the information gathering activities, the TWG considered the alternative of merging the TWG into IESBA's Emerging Issues and Outreach Committee (EIOC) and add these activities to the EIOC's remit given that many emerging issues are likely to be technology-related. Upon deliberation, the TWG has formed the view that the technology and EIOC workstreams should remain separate and that the EIOC should continue to bring to the TWG's attention any specific technology-related emerging issue for its consideration as appropriate.

Academic Research

108. The TWG had also explored the merits of recommending that the IESBA commission academic research on a technology-related topic. The purpose of such commissioned research is to assist the Board in gaining a more in-depth understanding of the types of technology and their impact on the ethical behavior of PAs. Such research should provide more robust evidence for the IESBA to determine if further enhancement to the Code or issuance of guidance material is necessary.

109. Based on its analysis of the information received in Phase 1, including any academic research and discussions with those from the academic community, the TWG did not identify any specific areas or issues that warrant further academic research.

110. The TWG recommends that as part of its on-going information gathering in 2020, it will continue to assess and remain alert for potential research topics to be considered by the IESBA.

Coordination with IAASB

111. As the IESBA's and IAASB's technology work streams progress, matters of mutual interest will be identified, discussed and managed at the staff, working group and Board levels in accordance with the agreed coordination framework between the two Boards.
112. As part of the coordination arrangement for the technology work streams, a member from the IAASB's Technology Working Group (formerly its Data Analytics Working Group) has been added to the TWG as a correspondent member, and vice versa. The purpose of this correspondent member arrangement is to facilitate discussions and optimize coordination and collaboration on matters of mutual interest between the two Boards. This would enable timely inputs to agenda papers and mutual participation in working group discussions as appropriate.
113. In this regard, the TWG will continue to monitor the IAASB's current technology work streams, including the development of non-authoritative guidance material by its TWG under its technology workstream plan as well as the work of its Audit Evidence Working Group relating to audit evidence.

Recommendation 8

The TWG recommends that two distinct work streams be established in accordance with paragraph 103:

- (a) *A formal project and related Task Force*, the objectives of which are to consider potential enhancements to the Code as set out in Recommendations 1 – 7 in Section III of this report.
- (b) *A Technology Working Group*, which would be responsible for:
 - Information gathering and analysis of technologies beyond AI and data/data analytics, including identification of suitable academic research.
 - Contributing to the development of non-authoritative guidance material as stated in Section V of this report in accordance with processes agreed between IFAC and IESBA.
 - Coordination with IAASB's Technology Working Group to identify and manage matters of mutual interest.

List of Stakeholders and Outreach Events Conducted to Date

Stakeholders/Events	MB	PAIBs	Firms	NSS	Reg	Academics	Vendor	Others	Region	Date
Association of Chartered Certified Accountants (ACCA)	•								Europe	Jan 2019
Chartered Institute of Management Accountants (CIMA)		•							Global	Jan 2019
Inflo (audit and accounting software vendor)							•		Europe	Jan 2019
Institute of Business Ethics (IBE)								•	Europe	Jan 2019
Institute of Chartered Accountants in England and Wales (ICAEW)	•								Europe	Jan 2019
Chartered Professional Accountants of Canada (CPA Canada)	•			•					North America	Jan 2019
University of Waterloo Centre for Accounting Ethics– 4 th Ethics Symposium	•		•			•			North America	Apr 2019
IESBA National Standard Settlers (NSS) 2019 Meeting				•					Global	May 2019
Accountancy Europe (AE)	•								Europe	May 2019
European Commission (EC)					•				Europe	May 2019

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 IESBA Meeting (December 2019)

Stakeholders/Events	MB	PAIBs	Firms	NSS	Reg	Academics	Vendor	Others	Region	Date
Organization for Economic Co-operation and Development (OECD)								•	Global	May 2019
Luncheon with Paris-based Firms			•						Europe	May 2019
Cercle d’Ethique des Affaires (CEA)								•	Europe	May 2019
CPA Canada – Foresight Meeting	•		•		•	•			North America	Jun 2019
American Institute of Certified Public Accountants (AICPA)	•								North America	Oct 2019
Rutgers Business School						•			North America	Oct 2019
U.S. Public Company Accounting Oversight Board (PCAOB)					•				North America	Oct 2019
U.S. Government Accountability Office (GAO)								•	North America	Oct 2019
U.S. Securities and Exchange Commission (SEC) (via teleconference)					•				North America	Oct 2019
Partner, Cotton & Company			•						North America	Oct 2019
Ordre des CPA du Québec (CPA Québec)	•			•					North America	Nov 2019