IAESB International Accounting Education Standards Board

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| **Committee:** | International Accounting Education Standards Board (IAESB) |
| **Meeting Location:** | Radisson Blu Hotel; Nairobi, Kenya |
| **Meeting Date:** | April 18 - 20, 2018 |
| **SUBJECT:** | **Information and Communications Technology Project Issues Paper (4/18)** |

## INTRODUCTION

1. The objective of this paper is to request input from the IAESB ("the Board") on the Information and Communications Technology (ICT) project.

2. This paper will also provide an update of the ICT Taskforce (the "Taskforce") activities since the November 2017 Board meeting.

3. Related to this issues paper are the following agenda items:

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| Agenda Item 4-1 | Information and Communications Technology Project – Issues Paper (4/18) |
| Agenda Item 4-2 | Draft ICT Survey Analysis (4/18) |
| Agenda Item 4-3 | Questions for Stakeholders (4/18) |
| Agenda Item 4-4 | Member Body Outreach (4/18) |
| Agenda Item 4-5 | Evaluation of Existing Standards (4/18) |

## BACKGROUND

4. Changes in technology across the financial reporting supply chain are impacting the ICT competencies and skills needed by aspiring and professional accountants ("Accountants") to perform their roles. Identifying the ICT skills needed by Accountants serves the public interest by enabling the accounting profession to provide high quality financial reporting, auditing, or other accounting services in the digital age.

5. The findings from the Taskforce will inform the Board's determination of the standards development activities needed to support skills development of Accountants in the area of ICT. This may include one or more of the following:

a) Amending or adding competence areas or learning outcomes to the International Education Standards (IESs)

b) Adding explanatory material within IESs

c) Developing new IESs

d) Providing non-authoritative guidance

6. The Taskforce commenced its activities in February 2017 and has held monthly conference calls and in-person meetings in June and November 2017. The ICT project plan was approved by the IAESB at its November 2017 meeting.

**PROJECT SCOPE**

7. The scope of the project is driven by the overall focus on professional competence and the evolution of the knowledge, skills and behaviors (collectively referred to as skills) needed in ICT. The Taskforce will develop an inventory of skills based on information gathering activities and perform an analysis to determine if the IESs are fit for purpose. Based on the strength of the evidence obtained through the information gathering activities, the Taskforce will recommend how to address gaps identified, if any.

8. The five ICT elements[1] identified and supported by information gathering activities to-date are presented below and will continue to guide the ICT skills discussion. These elements have not changed from those presented to the Board at the November 2017 meeting; however, the description that provides an understanding of how the elements are applied in the area of ICT have been further refined based on input by stakeholders and feedback from the Board and IAESB CAG in November 2017.

[1] Following feedback from the IAESB at the November 2017 meeting, 'Focus Areas' was renamed ICT Elements.

| | ICT Elements | April 2018 Description | November 2017 Description |
|---|---|---|---|
| 1 | **Business acumen** | Strategic business decisions are based on the integration of appropriately analyzed large data sets and professional judgment as applied to differing business environments amongst stakeholders such as vendors, customers, and employees.<br><br>Understand the impact ICT has on business models and risk, including how current and emerging technologies will impact the way business is conducted and measured. | Understand the impact ICT has on business risk, processes and models including how current and expected technologies will impact the manner in which business is conducted and measured.<br><br>Business decisions are based on the integration of appropriately analyzed large data sets and professional judgment as applied to differing business environments amongst stakeholders (e.g., vendors, customers, employees). |
| 2 | **Behavioral competence** | Enhance intellectual curiosity, critical thinking, agility and life-long learning to effectively respond to an environment of rapid technological change.<br><br>Professional judgment and professional skepticism will be applied in more situations faced by Accountants, which requires a strong sense of self- and situational-awareness.<br><br>Demonstrate ethical use and dissemination of data. | Demonstrate intellectual curiosity, critical thinking, agility and life-long learning to effectively respond to an environment of rapid technological change.<br><br>Professional judgment and professional skepticism will be applied in more situations faced by Accountants, which requires a strong sense of self- and situational-awareness.<br><br>Ethical use and dissemination of data is highly relevant in demonstrating integrity while performing one's role. |
| 3 | **Digital acumen** | Understand how new and emerging technologies operate, are used, and impact the generation, processing, and flow of data. For example, increased functionality through the cloud, elimination of manual processes through robotic process automation, artificial intelligence that senses, analyzes and learns from data and automates decision making, and blockchain that securely records transactions | Understand how enterprise resource planning systems, cloud computing (through increased access to functionality of systems) and other new and emerging technologies are used and operate in the context of the Accountant's role.<br><br>Generating, processing, and flow of information will be impacted by new technologies including artificial intelligence and robotics. |

| | ICT Elements | April 2018 Description | November 2017 Description |
|---|---|---|---|
| | | and eliminates third party verification or reconciliation.<br><br>Understand and influence how governance effectively oversees the impact of ICT, including data security. | Understand and influence how governance effectively oversees the impact of ICT, including data security. |
| 4 | **Data interrogation, synthesis and analysis** | Use structured and unstructured data, evaluate data integrity (complete, accurate and relevant) and understand exceptions to expectations.<br><br>Effectively and appropriately interpret the "story" the data is telling and make decisions accordingly.<br><br>Conduct risk assessments, predictive analysis and effectively use visualization tools. | Use of structured and unstructured data, data integrity (complete, accurate and relevant) and understanding exceptions to expectations, are elements needed to interpret the "story" the data is telling.<br><br>Conducting risk assessments, predictive analysis and effective use of visualization tools will be fundamental to performing the role of an Accountant. |
| 5 | **Communication** | New and emerging technologies will change the channels of communication from and across systems, for example, using social media and smart devices.<br><br>Effectively use new and emerging communication channels to communicate with impact, influence, and tell the "story" of new insights gained through the use of technology. | New and emerging technologies will change the channels of communication from and across systems, for example, through the use of social media and smart devices.<br><br>Communicating with impact, the ability to influence, and the use of effective communication techniques based on each specific situation is expected of Accountants. |

**Action Requested:**

**A. What is the Board's point of view on whether the refinements to the descriptions appropriately distinguish between the five ICT elements? For example, is the difference between business acumen and digital acumen clear?**

## INFORMATION GATHERING ACTIVITIES

9. The Taskforce has developed and progressed significantly in executing the stakeholder outreach plan that is based on the following approach:

   a) Initial and follow-on surveys

   b) Interviews

   c) Presentation and discussion of ICT skills development at meetings held by selected organizations

   d) Roundtables

   e) Interactive webcasts

10. In November 2017, the Taskforce reported the results of the literature review and the preliminary results of the online survey performed in 2017. The literature review was finalized and published by the IAESB in February 2018.

11. The Taskforce also conducted outreach with the following stakeholders:

| | |
|---|---|
| Two roundtables in Mexico with partricipants from private sector, public accounting and academia | November 2017 |
| Webinars for Academics | January 2018 |
| Global Accounting Alliance (in person) | March 2018 |
| Financial Executives Institute (in person) | March 2018 |
| Professional Accountants in Business Committee (in person) | March 2018 |
| American Accounting Association | April 2018 |
| Member bodies | March 2018 (on going) |

12. The questions developed and used by the Taskforce for these stakeholders are presented in Agenda Item 4-3, and the list of member bodies to which outreach is being conducted is presented in Agenda Item 4-4.

13. In addition, the following outreach activities are in progress:

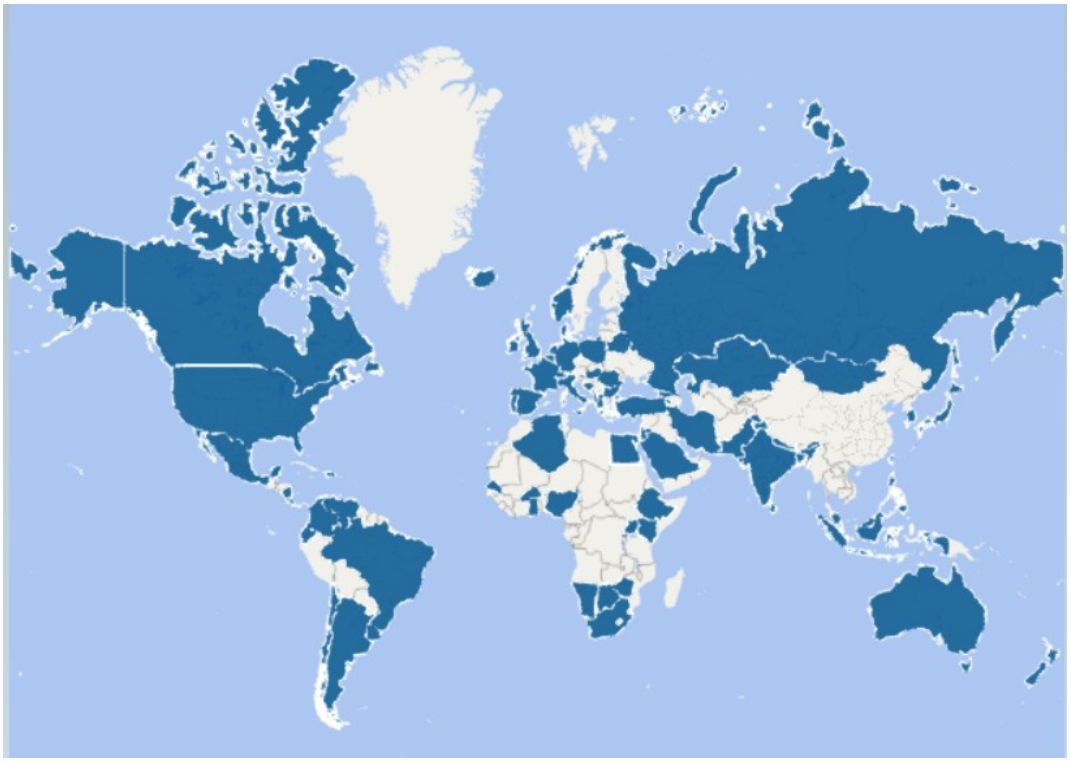
    a) Outreach to member bodies performed by board members and technical advisors.

    b) Follow-on surveys to individuals who expressed interest in participating further with outreach activities.

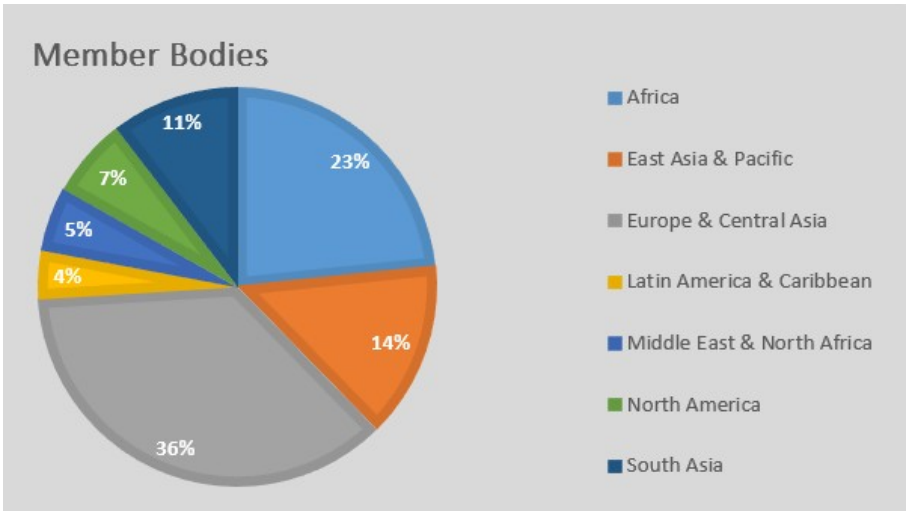
    c) Initial discussions with the Association to Advance Collegiate Schools of Business (AACSB) that are considering implications of ICT on education in business schools.

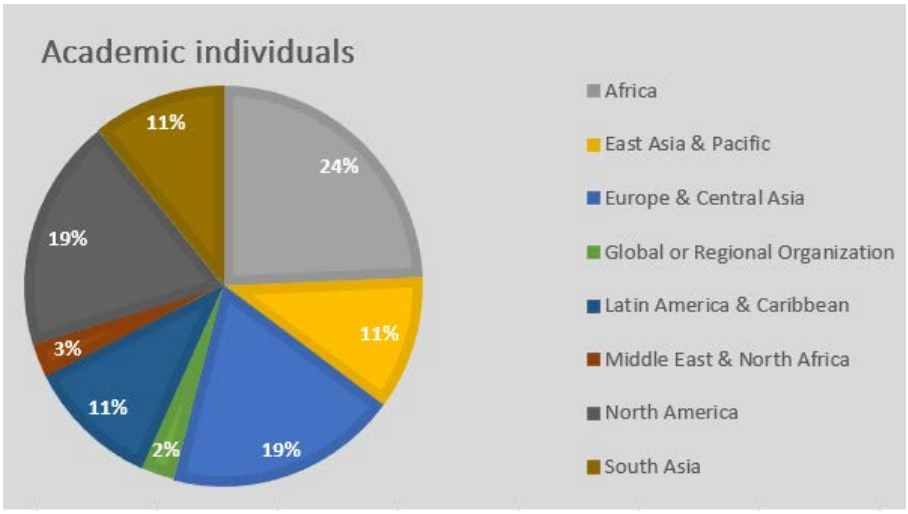
    d) ICT roundtables in Nairobi.

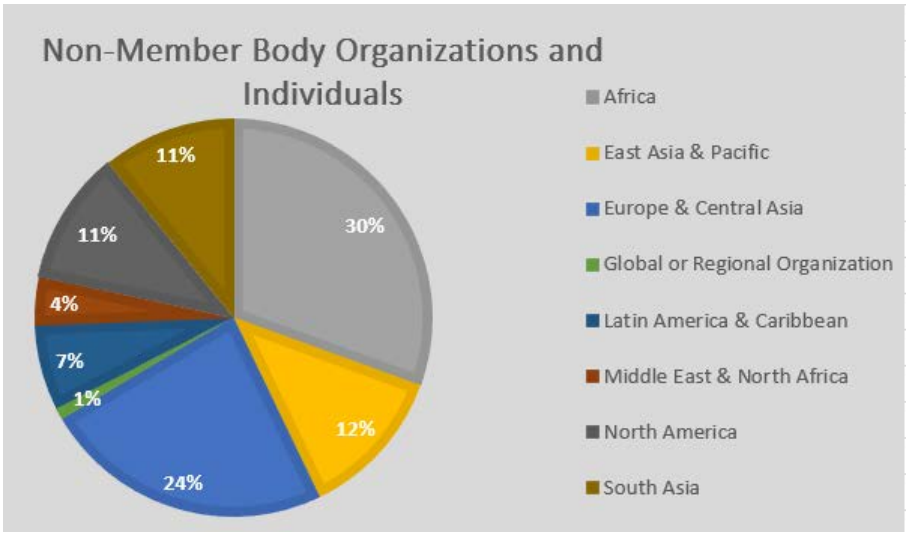
14. In considering the totality of the outreach including the initial surveys and outreach in progress, there is a high degree of geographic dispersion. The following depicts the countries (in dark green) represented by either completed or ongoing outreach.



In addition, the following depicts the proportional regional coverage for outreach with three groups - member bodies, academics and non-member body organizations and individuals.



**REVIEW OF STANDARDS AND FRAMEWORKS**

15. Another source of information identified by the Taskforce was based on the question of whether the International Standards on Auditing (ISAs) issued by the International Auditing and Assurance Standards Board (IAASB), Auditing Standards Issued by the Public Company Accounting Oversight Board (PCAOB), and the Code of Ethics issued by the International Ethics Standards Board for Accountants (IESBA) (collectively referred to as the "Standards") inherently required an Accountant to use ICT skills in its application of the Standards. Agenda Item 4-5 sets-forth the process used by the Taskforce to analyze the Standards.

16. The preliminary results are indicative that there is an underlying expectation of ICT skills needed by an Accountant to apply the Standards. Those identified skills are consistent with the five ICT elements. Additional findings include:

    a) There is a need for an Accountant to understand the nature of technology used in business processes and controls and the manner in which these technologies are used.

    b) Data analysis, including computer assisted techniques, are both specifically identified and implied as a necessary skill for auditors.

    c) The evaluation of the Standards has highlighted a greater emphasis on certain of the five elements, for example, business acumen.

17. The Taskforce is also performing an evaluation of existing competency frameworks for accountants and finance professionals[2] with the objective of identifying the breadth and depth of ICT skills expected of an Accountant. Initial findings indicate there is significant diversity as to the existence of ICT skills in these frameworks. Where ICT skills are included in these frameworks they are consistent with the five ICT elements.

**Action Requested:**

**B. What is the Board's point of view on the sufficiency of the information gathering activities?**

**C. Are there key stakeholders, other sources of information, or geographies that should be considered as part of the information gathering activites?**

[2] Includes frameworks from Chartered Global Management Accountants, Institute of Management Accountants, American Institute of Certified Public Accountants, Association of International Accountants, Association of Chartered Certified Accountants, Corporate Finance Institute, Certified General Accountants Association of Canada, Hong Kong Institute of CPAs, and South African Institute of Chartered Accountants organizations.

## INITIAL OBSERVATIONS

18. The Taskforce is continuing to gather information and complete the analysis of input received. Several themes have emerged through the initial observations of the information gathering activities as follows (not presented in order of importance):

    a) The five ICT elements broadly capture the skills needed by Accountants in the digital age.

    b) There is a growing shift towards a greater focus on specific tasks, skills and mindset and less on job titles.

    c) Technological awareness, its potential for disruption, and agility varies across stakeholder groups.

    d) Business strategies will be significantly influenced by ICT and business models will continue to change.

    e) New skills have not been identified but certain existing skills will be more widely used by Accountants, for example, business acumen, professional judgment, critical thinking and 'digital skepticism'.

    f) Continuing professional development will be essential in responding to the disruptive changes of technology led environments.

    g) There is a need to look outside of the accounting function to understand processes and data in other areas of the business and develop skills outside of the traditional accounting function.

    h) There will be a shift towards "self-service" use of data and technology.

    i) The change is not the specific technology, but the impact on how the Accountant's role will change as a result of ICT.

## SURVEY RESULTS

19. For reference, the ICT draft survey results are provided as Agenda Item 4-2. The Taskforce has completed its analysis on the comments provided by respondents to the ICT survey with the following summary findings:

    a) A clear message from all types of respondents that technology is having a significant impact on accounting education.

    b) Acknowledgment that an increased awareness about new and emerging technologies must be partnered with a range of other skills, such as interpretive, analytical, ethical change management and data handling skills.

    c) Support from the majority of respondents for a range of standard setting development activities, including provision of guidance, to address the changing skillsets needed by Accountants, both now and in the future.

**d)** Certain of the five ICT elements were emphasized, with a focus on those related to behavioral competence: lifelong learning, adaptability and change, professional skepticism and professional judgment, critical thinking, problem solving and critical analysis, intellectual curiosity, ethical behavior relating to data protection awareness and integrity and emotional intelligence and communication.

## ICT ELEMENTS MAPPED TO IESs

20. The Taskforce has mapped the five ICT elements to the existing competency and learning outcomes in the IES[3]. The objective of mapping the five ICT elements to existing IESs is to provide an initial view of whether IESs are responsive to the skills expected of Accountants to competently perform their role. While the analysis and information gathering activities are on-going, there are indications an opportunity exists to reevaluate the IESs when viewing them through a digital lens.

| | | EXISTING INTERNATIONAL EDUCATION STANDARDS | |
|---|---|---|---|
| | **ICT ELEMENT** | **COMPETENCY AREA** | **LEARNING OUTCOMES** |
| 1 | **Business acumen** | Business and organizational environment (IES 2) | Describe the environment in which an organization operates, including the main economic, legal, political, social, technical, international, and cultural forces. |
| | | Business strategy and management (IES 2) | Analyze the external and internal factors that may influence the strategy of an organization. |
| | | Business environment (IES 8) | Analyze relevant industry, regulatory, and other external factors that are used to inform audit risk assessments including, but not limited to, market, competition, product technology, and environmental requirements. |
| **2** | **Behavioral competence** | Intellectual (IES 3) | Apply professional judgment, including identification and evaluation of alternatives, to reach well-reasoned conclusions based on all relevant facts and circumstances. |
| | | | Apply reasoning, critical analysis, and innovative thinking to solve problems. |
| | | Personal (IES 3) | Demonstrate a commitment to lifelong learning. |
| | | | Apply professional skepticism through questioning and critically assessing all information. |
| | | Professional skepticism and professional judgment (IES 4) | Apply a questioning mindset critically to assess financial information and other relevant data. |
| | | | Identify and evaluate reasonable alternatives to reach well-reasoned conclusions based on all relevant facts and circumstances. |

[3] The Taskforce presented the competency areas and learning outcomes in the IESs that were considered directly related to the five ICT elements at the November 2017 Board meeting. As further information has been obtained during outreach activities, those competency areas and learning outcomes identified that were considered directly related to ICT have been revised. The mapping is based on the Taskforce's revised view of which competencies and learning outcomes specifically relate to ICT.

| | ICT ELEMENT | COMPETENCY AREA | LEARNING OUTCOMES |
|---|---|---|---|
| 3 | **Digital acumen** | Information technology (IES 2) | Analyze the adequacy of general information technology controls and relevant application controls. |
| | | | Explain how information technology contributes to data analysis and decision making. |
| | | Information technology (IES 8) | Evaluate the information technology (IT) environment to identify controls that relate to the financial statements to determine the impact on the overall audit strategy. |
| 4 | **Data interrogation, synthesis and analysis** | Information technology (IES 2) | Use information technology to support decision making through business analytics. |
| | | Intellectual (IES 3) | Evaluate information from a variety of sources and perspectives through research, analysis, and integration. |
| | | Organizational (IES 3) | Apply appropriate tools and technology to increase efficiency and effectiveness and improve decision making. |
| 5 | **Communication** | Interpersonal and communication (IES 3) | Communicate clearly and concisely when presenting, discussing and reporting in formal and informal situations, both in writing and orally. |

**Action Requested:**

**D. Are there additional competency areas or learning outcomes in the IESs the Board believes are directly related to ICT as described in the five elements?**

**E. Based on the information gathering activities to date, what is the Board's point of view on whether the competency areas and learning outcomes in the IESs effectively capture the skills needed by Accountants in the digital age?**

## COORDINATION WITH OTHER TASKFORCES

21. The Professional Skepticism Literature Review Taskforce (PSLRTF) completed a literature review with a primary emphasis on the skills, competencies and behaviors that influence the application of professional skepticism. The literature review is one source of information used by the Taskforce in considering the skills associated with Behavioral Competence. While further analysis by the Taskforce is in process, the following observations provide insight and have informed the Taskforce:

a) **Overcoming Bias:** Skepticism and unconscious bias start at an early age, but understanding and conscious awareness of these behaviors can lead to better decisions by accountants. Exploring "de-biasing" strategies is worthwhile.

b) **Inherited Traits:** Individual differences in the exercise of skepticism can be traced to inherited traits and/or learned experiences; skepticism as an attitude can be taught and learned, and performance improved.

22. At its April 2017 meeting, the Board endorsed the creation of several work streams related to professional skepticism and agreed to form a Taskforce to address Behavioral Competence. The ICT Taskforce and the Behavioral Competence Taskforce continue to work closely together to enable an effective use of Board resources and take advantage of the synergies in the broader context of ICT behavioral competence. The Taskforces have agreed to increase the level of engagement after the April 2018 Board meeting, which is consistent with the progression of the work by each Taskforce.

23. The Taskforce acknowledges the broader consideration by the Board to address the potential for amending existing IESs due to the current work of multiple taskforces while also considering the timing and objectives of a post-implementation review.

**PROPOSED MILESTONES AND TIMELINE**

24. The proposed milestones and expected completion dates are presented below.

| | **Milestones** | **Completion Dates** |
|---|---|---|
| 1 | Literature review scoping and evaluation | Completed |
| 2 | Survey stakeholders<br>• Develop & Conduct survey<br>• Analyze and summarize survey responses | Completed |
| 3 | Initial discussions with other independent standard setting boards and IFAC Board Committees and workstreams<br>• IAASB's Data Analytics Working Group<br>• IFAC Technology Advisory Group<br>• Professional Accountants in Business Committee | Completed |
| 4 | Plan and execute stakeholder outreach | On-going through April 2018 |
| 5 | Identify core ICT skills needed by aspiring and professional accountants in order to perform their roles | On-going through May 2018 |
| 6 | Develop and complete analysis of Standards | On-going through April 2018 |
| 7 | Review of global accounting competency or skills frameworks | On-going through April 2018 |
| 8 | Perform an analysis of ICT skills identified from the information gathering activities against the competence areas and learning outcomes in the IESs | On-going through June 2018 |

| | **Milestones** | **Completion Dates** |
|---|---|---|
| 9 | Evaluate the analysis of ICT skills.<br><br>Determine how ICT skills gaps, if any, will be addressed – amending or adding specific IES competence areas or learning outcomes; considering additional explanatory material within IESs; developing new IESs; or providing non-authoritative guidance. | June 2018 |
| 10 | Present gap analysis and provide recommendations to the Board for proposed standards development activities. | July 2018 |

**Action Requested:**

**F. What is the Board's point of view on whether there are additional milestones expected to achieve the ICT project's objective?**

## RESOURCES

25. The Taskforce members are Anne-Marie Vitale (Chair), Helen Partridge (Secretary), David McPeak (IFAC Staff), Keryn Chalmers, Sue Flis, Sarah Jakubowski, Steve Matzke, Greg Owens, Sidharta Utama and Robert Zwane.

26. An evaluation of the sufficiency of resources will occur on an ongoing basis throughout the ICT project, and as additional resources are needed, adjustments will be made accordingly. For example, IAESB CAG members providing support in outreach activities has been highly effective and Board members and technical advisors have assisted greatly in conducting outreach activities.

## PROPOSED WAY FORWARD

27. Based on the input to be provided by the CAG and the Board during April 2018, the Taskforce will revise, as necessary, its project scope and planned activities.