

The Audit Implications of External Assistance in Making an Accounting Estimate**Section I - Background**

1. This paper discusses the audit implications of external assistance sought by management, and in some cases, auditors, in dealing with accounting estimates. It is structured as follows:
 - Section II – Scope
 - Section III - The Difference Between a Management's Expert and an External Data Source
 - Section IV - Work Effort over Data from External Data Sources
 - Section V – Management's Use of External Models
 - Section VI - Auditor's Use of an Expert
2. The use of external assistance by management is common in many entities. External assistance, which is addressed in International Standard on Auditing (ISA) 500,¹ can be divided into the following categories:
 - Management's use of external data sources; and
 - Management's use of the work of an expert in preparing information.
3. Auditors may also make use of external assistance in performing the audit. The auditor's use of the work of an auditor's expert is addressed in ISA 620,² whereas the auditor's use of external data sources is governed by the general audit evidence requirements in ISA 500.
4. The use of external data sources has been an area where the IAASB has considered new requirements and application material since the issuance of IAPN 1000³ in 2011. When IAPN 1000, which includes some guidance on an entity's use of an external data source, was approved, it was acknowledged that amendments to the application material in ISA 500 and ISA 540⁴ were needed relative to an entity's use of third-party data sources.
5. In the outreach performed by the ISA 540 Task Force's (the Task Force) leadership it was also noted that the guidance with respect to the use of external data could be enhanced. Stakeholders noted circumstances in which external data sources are either used by management or a management's expert as a source of data used in making an accounting estimate or are used by an auditor or by an auditor's expert to evaluate data or assumptions underlying a valuation that management has made. Outreach also indicated that further guidance as part of the ISA 540 project could be useful to explain the use of an auditor's expert when auditing accounting estimates and when management uses a model developed by an external source.
6. In the March 2016 IAASB meeting, the Task Force noted that it would continue its work on the following key issues identified:
 - Emphasizing the distinction between an external data source and a management's expert;
 - Explaining the auditor's work effort on data obtained from an external data source; and
 - Exploring whether the requirements and application material can be enhanced in relation to using the work of an auditor's expert when auditing accounting estimates.

¹ ISA 500, *Audit Evidence*

² ISA 620, *Using the Work of an Auditor's Expert*

³ International Auditing Practice Note (IAPN) 1000, *Special Considerations in Auditing Financial Instruments*

⁴ ISA 540, *Auditing Accounting Estimates, Including Fair Value Accounting Estimates, and Related Disclosures*

With respect to the last matter, the Board asked the Task Force to consider what changes could be made via conforming amendments to ISA 620, but not to commence a revision of ISA 620.

7. Subsequently, the Task Force discussed the issues identified in its April 2016 and July 2016 physical Task Force meetings. In these meetings the Task Force also discussed the potential scope of further guidance on external data sources.
8. In August 2014 the United States Public Company Accounting Oversight Board (PCAOB) issued a Staff Consultation Paper, *Auditing Accounting Estimates and Fair Value Measurements*.⁵ One of the sections in this paper discusses the use of third parties, including the evaluation of audit evidence from third-party sources.

Section II - Scope

9. As part of the development of IAPN 1000 the Board had some preliminary discussions on “third-party pricing sources” as management’s use of pricing and pricing related data was the key issue at hand for the IAPN. Based on the outreach performed by the Task Force’s leadership and initial discussions within the Task Force, it was noted that the use of external sources for prices is still a concern for regulators, but that many entities also make use of external sources for data other than prices. Examples of data other than prices include:
 - Macro-economic data such as unemployment rates and economic growth rates, or census information as required by International Financial Reporting Standard 9;
 - Pricing related data, such as transaction volumes;
 - Credit data;
 - Industry specific data such as an index of reclamation costs for certain extractive industries or television ratings used to determine revenue in the entertainment industry; and
 - Mortality tables to determine liabilities in the life insurance and pension sectors.
10. The Task Force was of the view that data other than prices should, given its similarities in characteristics and use with pricing data, be included in the scope of guidance developed by the Task Force.

Section II-A - External Models

11. With respect to management’s use of models in making the accounting estimate, the Task Force notes that management may use external models (i.e., models obtained or developed from outside the entity) in some areas, such as in calculating the allowance for loan losses, for depreciation models and valuation models. This may be particularly true for smaller entities that may not have the in-house expertise to develop the model.
12. The audit implications of management’s use of external models is covered in paragraph 49-52.

Section II-B - Terminology

13. Given the use of third parties for data other than prices, the Task Force was of the view that it would be more appropriate to refer to “data sources” instead of “pricing sources”. The term data sources includes pricing sources. The Task Force was furthermore of the view that the use of “external” is more in line with the wording used in the ISAs and will therefore use the term “external data sources” instead of “third party pricing sources”. The Task Force also notes that the term “third party” is seen by some as being confusing, as it is not always clear who is the “third party.”

⁵ https://pcaobus.org/Standards/Documents/SCP_Auditing_Accounting_Estimates_Fair_Value_Measurements.pdf

Matter for IAASB Consideration

- 1) What views does the IAASB have on:
 - a. The use of the term “external data sources”
 - b. The appropriateness of considering prices and other data obtained from external data sources together;

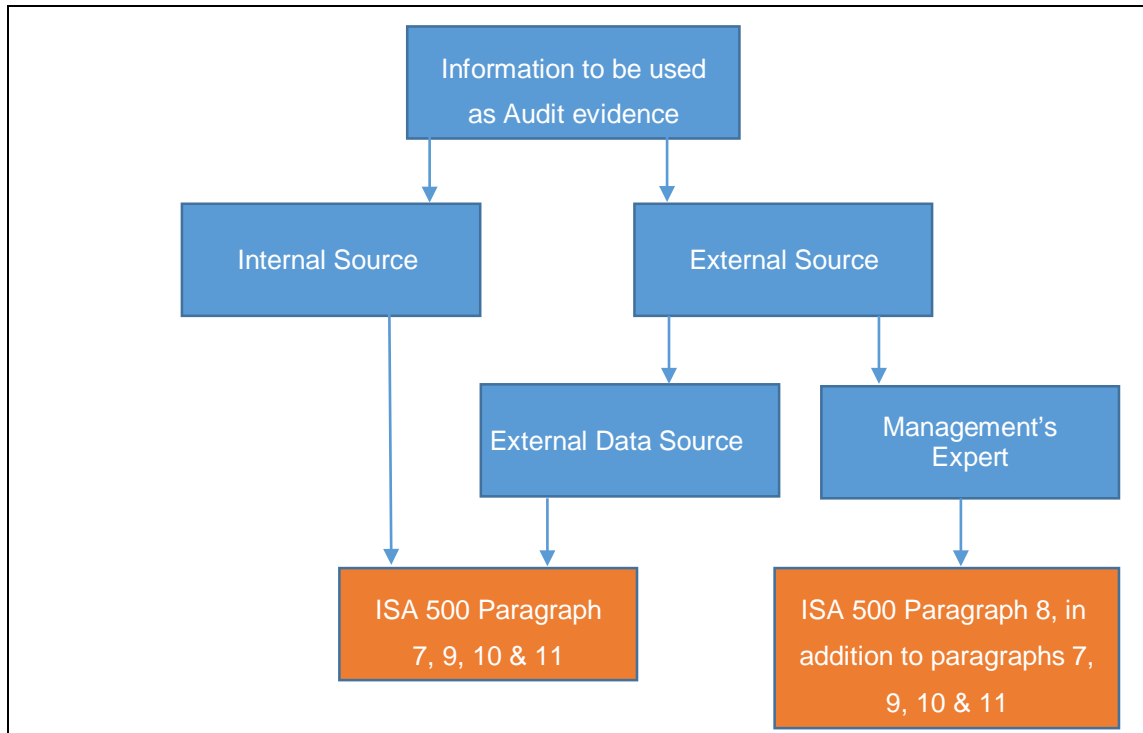
Section III - The Difference Between a Management’s Expert and an External Data Source

Section III-A - Background

14. ISA 500 explains what constitutes audit evidence in an audit of financial statements, and deals with the auditor’s responsibility to design and perform audit procedures to obtain sufficient appropriate audit evidence to be able to draw reasonable conclusions on which to base the auditor’s opinion. Importantly:
 - Paragraph 6 of ISA 500 requires the auditor to design and perform audit procedures that are appropriate in the circumstances for the purpose of obtaining sufficient appropriate audit evidence.
 - Paragraph 7 of ISA 500 requires the auditor to consider the relevance and reliability of the information to be used as audit evidence.
 - Paragraph 8 of ISA 500 requires the auditor to perform certain procedures when management uses an expert to assist in preparing the financial statements and the auditor uses that information as audit evidence.
 - Paragraph 9 requires the auditor to evaluate whether the information produced by the entity is sufficiently reliable for the auditor’s purposes.
 - Paragraph 10 requires the auditor to select items for testing that are effective in meeting the purpose of the audit procedure.
 - Paragraph 11 requires the auditor to determine what modifications or additions to audit procedures are necessary to resolve inconsistency in, or doubts over the reliability of audit evidence.
15. The distinction between a management’s expert and an external data source influences the procedures to be performed by the auditor. This distinction is currently described, on a high level, in paragraph A35 of ISA 500.⁶

⁶ Paragraph A35 of ISA 500 “When information to be used as audit evidence has been prepared using the work of a management’s expert, the requirement in paragraph 8 of this ISA applies. For example, an individual or organization may possess expertise in the application of models to estimate the fair value of securities for which there is no observable market. If the individual or organization applies that expertise in making an estimate which the entity uses in preparing its financial statements, the individual or organization is a management’s expert and paragraph 8 applies. If, on the other hand, that individual or organization merely provides price data regarding private transactions not otherwise available to the entity which the entity uses in its own estimation methods, such information, if used as audit evidence, is subject to paragraph 7 of this ISA, but is not the use of a management’s expert by the entity.”

16. The flow chart below shows which steps the auditor follows to determine which requirements in ISA 500 apply with respect to considering information to be used as audit evidence.



17. As part of the development of IAPN 1000 some initial drafting on paragraph A35 of ISA 500 was performed to clarify when a third-party pricing source is, or is not, a management's expert. It was noted that the key difference between a management's expert and a third-party pricing sources is that a third-party pricing source's 'information is available to other customers of the individual or organization as well.' For example, a pricing source may provide prices on many thousands of different assets, with the prices available via a direct feed to management, using a subscription model; but an expert might need to be used where a real estate valuation is sought regarding a particular property. It is noted that pricing sources sometimes have mechanisms that allow subscribers to challenge the prices they received – which would normally require additional transaction data to be provided to the pricing source.

Section III-B - Task Force Discussions

18. The Task Force discussed where in the ISAs the distinction between an external data source and a management's expert should be made and was of the view that making limited conforming amendments to ISA 500 would be the best approach given that some distinction between information from a management expert and data from an external data source is already included in paragraph A35 of ISA 500.
19. The Task Force was of the view that the determination of whether or not external data is obtained from a management's expert or an external data source should be based on the definition of a management's expert and not on whether the information is publicly or widely available to other customers. This is because ISA 500 does not include a requirement from which to base guidance on whether or not the information is publicly available to other customers.

20. When considering a management's expert, the Task Force noted that ISA 500, paragraph 5 defines a management's expert as:
- ‘An individual or organization possessing expertise in a field other than accounting or auditing, whose work in that field is used by the entity to assist the entity in preparing the financial statements’⁷
21. In this definition the Task Force was of the view that the words ‘*possessing expertise in a field other than accounting or auditing*’ play a central role in the distinction between a management's expert and an external data source. While the activities and goals of an external data source may vary, the Task Force identified several factors that may indicate that an external data source has been used as opposed to a management's expert. These factors are based on the definition of a management's expert and therefore added as application material to the definition of a management's expert. The factors include:
- The processing of data by the external data source does not require complex calculations. For example, the external data source may collate data obtained from different sources; and
 - The judgement required to generate the data is limited.
22. In addition to the factors that can be directly linked to the definition of a management's expert the Task Force also identified other factors that may indicate that an external data source has been used as opposed to a management's expert. These factors include:
- The data is not specifically generated for the entity.
 - The data is widely available, including when a fee needs to be paid to access the data.
23. The Task Force also noted that an individual or organization might be an external data source with respect to certain types of fair value measurements that are valued using observable inputs (e.g., when providing values for level 1 investments that are determined based on quoted prices) while the same individual or organization may function more like a management's expert (e.g., when providing values related to complex financial instruments that are not widely held and infrequently traded and therefore hard to value due to the absence of observable market data, or because only limited amounts of information are available).
24. The Task Force proposes to:
- Add application material to the definition of a management's expert explaining the difference between a management's expert and external data source (paragraph A1a-A1c); and
 - Delete paragraph A35 given the new guidance in paragraph A1a-A1c.
25. The Task Force is of the view that the factors described in paragraphs 21 and 22 would not be in conflict with the existing definition of a management's expert in extant ISA 500. However, the Task Force has not fully considered how the factors mentioned in paragraph 22 can be incorporated within ISA 500 in attempting to differentiate between external data sources and a management's expert, including whether other changes might be necessary to the definition of a management's expert or whether a new definition of an external data source is needed.

⁷ ISA 500, paragraph 5

Marked from Extant ISA 500

Definitions

5. For purposes of the ISA, the following terms have the meanings attributed below:

....

- (d) Management's expert – An individual or organization possessing expertise in a field other than accounting or auditing, whose work in that field is used by the entity to assist the entity in preparing the financial statements. (Ref: Para. A1a-A1c)

....

A1a. In preparing the financial statements management may make use of data obtained from an external data source that does not meet the definition of a management's expert. Indicators that an external data source is used may include the following:

- The processing of data by the external data source does not require complex calculations. For example, the external data source may collate data obtained from different sources.
- The judgement required to generate the data is limited.

A1b. Data may be obtained from external sources such as pricing services, governmental organizations, central banks or recognized stock exchanges. Examples of data from external data sources include:

- Prices and pricing related information;
- Macro-economic data such as unemployment rates and economic growth rates, or census information as required by some expected credit loss models;
- Credit data;
- Industry specific data such as an index of reclamation costs for certain extractive industries or television ratings used to determine revenue in the entertainment industry; and
- Mortality tables to determine liabilities in the life insurance and pension sectors.

A1c. Depending on the facts and circumstances an individual or organization might be an external data source or a management's expert, or both. For example, with respect to certain types of fair value measurements that are valued using observable inputs (e.g., when providing values for level 1 financial instruments that are determined based on quoted prices) an individual or organization may be an external data source. Alternatively, for other types of financial instruments, the same individual or organization may be a management's expert (e.g., when providing values related to complex financial instruments that are not widely held and infrequently traded and therefore hard to value due to the absence of observable market data, or because only limited amounts of information are available).

Matter for IAASB Consideration

- 2) The IAASB is asked for its views on:
- a) The preliminary drafting as included above, including the use of factors in paragraph A1a;
 - b) The factors included in paragraph 22; and
 - c) Whether other options, such as changing the definition of a management's expert or adding a definition of an external data source, should be further investigated by the Task Force.

Section III-C - Definition of a Management's Expert

26. While the Task Force has not completed its deliberations on this topic, some discussions have taken place regarding the definition of management's expert as clarifying or elaborating on the definition may assist in distinguishing management's experts from external data sources. *This section describes those discussions, but the Task Force is not seeking comments on the definition at this time.*
27. The Task Force discussed whether it would be useful to add 'general' before 'accounting or auditing' in the definition of a management expert as there could be confusion whether, in certain areas, expertise would fall under accounting and auditing expertise. For example, accountants and auditors should have an understanding of tax, and, therefore, tax could be seen as part of accounting and auditing expertise. However a limited number of accountants and auditors have expertise about specific tax areas, such as transfer pricing. Similarly, valuations could be seen as a part of accounting and auditing expertise. However, some members of the Task Force were of the view that, for example, the valuation of a level 3 financial instrument would go beyond "accounting and auditing" as it requires more specialized expertise in valuations.
28. As the definition of a management's expert is currently aligned with the definition of an auditor's expert⁸ making changes to the definition of a management's expert could also have implications on the definition of an auditor's expert. Accordingly, the Task Force does not recommend making changes to the definition of a management's expert at this time. However, the Task Force is of the view that more examples could be given to distinguish an external data source from a management's expert.
29. The Task Force will further consider the issue and bring a proposal to a future IAASB meeting.

Section IV - Work Effort over Data from External Data Sources

30. The Task Force discussed where best to include guidance with respect to the work effort over external data used as audit evidence and noted that the issue could either be addressed in ISA 500 or ISA 540. ISA 500 addresses all audit evidence obtained during the course of the audit while, on the other hand, external data sources are often used when making accounting estimates. The Task Force prefers addressing this issue in ISA 540 as it would be most appropriately located there.

⁸ Paragraph 6 of ISA 620 defines an auditor's expert as: 'An individual or organization possessing expertise in a field other than accounting or auditing, whose work in that field is used by the auditor to assist the auditor in obtaining sufficient appropriate audit evidence. An auditor's expert may be either an auditor's internal expert (who is a partner or staff, including temporary staff, of the auditor's firm or a network firm), or an auditor's external expert.'

Section IV-A - Nature and Extent of Procedures to be Performed over Data from External Data Sources

31. As part of the development of IAPN 1000, some initial drafting suggestions to ISA 500 were made with respect to the nature and extent of the audit procedures to be performed over third-party pricing sources. It was noted that the nature and extent of procedures to test management's use of third-party pricing sources depends on the observability of inputs and complexity of methods for a specific security or asset class. It was also noted that the nature and extent of the procedures performed by the auditor depends in part on the availability of information from the source – that is, alternative procedures may need to be performed if sufficient information is not available from the external data source to enable particular procedures to be performed.
32. The Task Force generally agreed with the approach taken in the development of IAPN 1000 and was of the view that a similar risk based approach with respect to external data would be useful.
33. Outreach by the Task Force's leadership highlighted that some stakeholders were of the view that external data sources provide data which may, arguably, be free of influence from management bias and that the absence of this bias enhances the reliability of the data. Additionally, for pricing services, given that the information provided by an external data source may be used every day by market participants, and is subject to price challenges by these same market participants, there appears to be a degree of monitoring inherent in the process to develop prices.
34. The Task Force agreed that the influence of management bias on data obtained from an external data source may be less than for internally generated data but noted that the auditor should still have a skeptical mindset and cannot assume that the data from an external data source is reliable and free from bias. The Task Force's discussions highlighted that there may be instances where management has been able to influence the data provided by the external data source. The Task Force also noted that the external data source might have its own biases and may be incomplete or wrong. The Task Force was therefore of the view that the auditor should evaluate whether the data obtained from the external data source is reliable as required by paragraph 9 of ISA 500.
35. The Task Force discussed detailed procedures that can be performed to test the reliability and relevance of evidence obtained from an external data source considering the drafting performed in the development of IAPN 1000 and the PCAOB's Staff Consultation Paper. The Task Force will continue its work on the application material, including how audit firms may use internal centralized pricing services to obtain audit evidence, and will present in the IAASB's September 2016 meeting together with the work effort section of ISA 540.

Section IV-B - Challenges in Obtaining Sufficient Appropriate Audit Evidence from External Data Sources

36. Both the IAPN 1000 Task Force and the PCAOB in its Staff Consultation Paper recognized that there might be constraints in obtaining sufficient appropriate audit evidence from external data sources. Paragraph 55-59 of IAPN 1000 explain the differences between pricing services, including consensus pricing services, and broker quotes and also highlights some of the constraints in obtaining sufficient appropriate audit evidence for the different pricing services. Paragraph 55-59 of IAPN 1000 are included as an appendix to this paper.
37. Some external data sources will not disclose information about the data, such as how the data is accumulated, calculations in the production of the data, and the process used to generate the data (including any controls over the process that may be relevant in determining the reliability of the information provided), because of confidentiality or proprietary reasons. These same limitations on disclosure of information related to the internal process and judgments may also be the case for some management's experts.

38. In addition, for external data specifically related to pricing, the following issues were identified:
- The information needed to determine whether fair values are based on transactions of comparable assets or liabilities is generally only available at an aggregated level, and at a security level via a ‘deep dive,’ for which external data sources may limit the number that their customers, including companies and auditors, may request.
 - Generally, ISAE 3402⁹-style reports on the controls at the external data sources are not available. Further, the reports the Task Force is aware of generally exclude controls over valuation, making them of limited use to management and auditors.
39. The Task Force was of the view that it would be useful to develop guidance on what the practitioner may do when it is difficult to assess the reliability of the evidence from the external data sources. Application material could highlight that the amount of audit evidence needed is driven by the relevance and reliability of the data obtained and that the procedures the auditor may perform therefore depends on the specific facts and circumstances. For example, when the data received from the external data source relates to security prices, the auditor may be able to obtain an independent price from another external pricing source or develop an independent estimate.
40. Other examples of procedures the auditor may perform to address the reliability of external data include:
- Performing substantive analytical procedures;¹⁰ or
 - Performing other analytical procedures such as trend analysis.
41. It was noted by some Task Force members that, since management is responsible for preparing the financial statements, maintaining support for the accounting transactions and obtaining an understanding how accounting estimates are made, the auditor’s approach to reviewing the data from an external data source should be the same whether the support is prepared internally or prepared externally by an external data source.
42. The Task Force will review paragraphs 117-118 of IAPN 1000 to see what material there can be made more broadly applicable to all audits and will also consider application material that addresses the situation when the auditor cannot obtain sufficient reliable audit evidence over the external data.
43. The Task Force will draft application material in this area and will present it to the Board in its September 2016 meeting.

Section IV-C - Management and the Auditor Use the Same External Data Source

44. The Task Force discussed the situation in which management and the auditor use the same external data source. For example, an exchange publishes transactional data which is used by all parties, while a pricing service (such as Bloomberg) is used by many banks and audit firms.
45. In its discussions, the Task Force was of the view that the facts and circumstances of the situation would need to be considered to determine whether it is appropriate for the auditor to use as the same external data source as management. For example, when the data obtained from the

⁹ International Standards On Assurance Engagements (ISAE) 3402, *Assurance Reports on Controls at a Service Organization*

¹⁰ Substantive analytical procedures are analytical procedures used as a substantive procedure (ISA 520, *Analytical Procedures*, paragraph 1). A substantive procedure is defined in the ISAs as: ‘An audit procedure designed to detect material misstatements at the assertion level.’ An example of a substantive analytical procedure would be multiplying a debt by the contractual interest rate, and comparing the result with the recorded interest expense.

external data source is used to make an accounting estimate, and the auditor assesses the risk of material misstatement related to the estimate as lower, it may be appropriate for the auditor to rely on that data as audit evidence (assuming the auditor has determined that the data is reliable).

46. However, when the data obtained from the external data source is used to make an accounting estimate that has a higher assessed risk of material misstatement, it may be necessary for the auditor to have a more intensive response, including on the extent of the procedures to evaluate the relevance and reliability of that information. Additional procedures may focus on whether the data is complete and free of material error. When another external data source is available, this may include the auditor accessing a different external data source from that used by management.
47. The Task Force also noted that in less developed markets there might be only one external data source for certain data, including prices, and that therefore there is no alternative data available. In these circumstances the auditor may consider alternative procedures, such as analytical procedures, to assess the reliability of the data.
48. The Task Force will continue to discuss this matter and will present proposals to the Board in its September 2016 meeting, taking into account the comments expressed by the Board at the July teleconference.

Matter for IAASB Consideration

- 3) The IAASB is asked for its views on the Task Force's preliminary discussion on the work effort over external data used as audit evidence, including when both management and the auditor have access to the same external data source.

Section V – Management's Use of External Models

49. In its outreach the Task Force was informed that external models are either:
 - Developed by an external model source and obtained and used by management to make the accounting estimate; or
 - Obtained and used by an external data source to produce data which is used by management to make the accounting estimate.

These models may be developed for the entity specifically or may be publicly available.

50. The Task Force noted that models are not external data as models apply assumptions and data, and a set of relationships between them, as specified by the method used to make the accounting estimate. When an external model is used to make an accounting estimate additional risks of material misstatements may exist related to such data (e.g., management may not understand or have access to the internal workings of the model to determine if it complies with accounting standards and otherwise appropriate for the entity's use). Given the different characteristics between external data sources and external models, the Task Force was of the view that external models should not be included in the scope of guidance on external data sources but that requirements or guidance would be useful to help the auditor design and perform appropriate audit procedures to address risks related to external models.
51. While the Task Force continues to debate the issues around the audit implications of management's use of external models, a majority of the Task Force is of the tentative view that external models should be treated no differently to management's own model – that is, the auditor should be required to perform the same procedures based on the risks of material misstatement that the auditor would have performed if the external model were management's own model.

52. The Task Force will consider further guidance on management's use of external models and present that at the IAASB's September 2016 meeting.

Section VI - Auditor's Use of an Expert

53. A revision of ISA 620 is outside the scope of the project to revise ISA 540, however the Task Force is open to recommending limited conforming amendments to ISA 620 as well as additional application material in ISA 540 where needed. It should be noted that the Task Force does presently have indications that ISA 620 needs revision – recognizing that the Task Force has not conducted specific outreach on ISA 620 (See also comments on the linkages between the definition of a management's expert and an auditor's expert in Section III-C). However, the Task Force's leadership, while conducting outreach, has heard suggestions that auditors may not always consistently apply ISA 620 in practice.
54. The following application material is currently included in ISA 540 with respect to the use of the auditor's expert:

A99. However, the auditor may not possess the specialized skills or knowledge required when the matter involved is in a field other than accounting or auditing and may need to obtain it from an auditor's expert. ISA 620²² establishes requirements and provides guidance in determining the need to employ or engage an auditor's expert and the auditor's responsibilities when using the work of an auditor's expert.

55. The Task Force has had preliminary discussions, based on the ISA Implementation Monitoring Report¹¹ and outreach performed, about areas where application material could be included in ISA 540 in relation to using the work of the auditor's experts when auditing accounting estimates. The Task Force was of the view that application can be added that:
- Highlights why the decision to use an auditor's experts is important when auditing accounting estimates;
 - Explains the scope of work to be performed by the auditor on the expert's work in respect of accounting estimates; and
 - Includes examples of areas where the auditor might use an auditor's expert as the engagement team might have insufficient expertise with certain types of accounting estimates to perform necessary and appropriate procedures (e.g., to appropriately challenge the work of a management's expert and consider contradictory evidence).
56. The Task Force will draft application material on the areas highlighted above and will present in the IAASB's September 2016 meeting.

Matter for IAASB Consideration

- 4) The IAASB is asked for its views on the areas where the Task Force proposes to draft new application material and whether the Task Force should consider application material in other areas.

¹¹ <https://www.ifac.org/system/files/publications/files/Implementation-Review-of-the-Clarified-ISAs.pdf>

Appendix

Background Information on Pricing Services

Paragraph 55-59 of IAPN 1000 explain the differences between pricing services, including consensus pricing services, and broker quotes. Given the different challenges that each pricing services has, Staff included, for information purposes, the explanation as included in IAPN 1000 below.

Pricing Services

55. Pricing services provide entities with prices and price-related data for a variety of financial instruments, often performing daily valuations of large numbers of financial instruments. These valuations may be made by collecting market data and prices from a wide variety of sources, including market makers, and, in certain instances, using internal valuations techniques to derive estimated fair values. Pricing services may combine a number of approaches to arrive at a price. Pricing services are often used as a source of prices based on level 2 inputs. Pricing services may have strong controls around how prices are developed and their customers often include a wide variety of parties, including buy and sell side investors, back and middle office functions, auditors and others.
56. Pricing services often have a formalized process for customers to challenge the prices received from the pricing services. These challenge processes usually require the customer to provide evidence to support an alternative price, with challenges categorized based on the quality of evidence provided. For example, a challenge based on a recent sale of that instrument that the pricing service was not aware of may be upheld, whereas a challenge based on a customer's own valuation technique may be more heavily scrutinized. In this way, a pricing service with a large number of leading participants, both buy and sell side, may be able to constantly correct prices to more fully reflect the information available to market participants.

Consensus Pricing Services

57. Some entities may use pricing data from consensus pricing services which differ from other pricing services. Consensus pricing services obtain pricing information about an instrument from several participating entities (subscribers). Each subscriber submits prices to the pricing service. The pricing service treats this information confidentially and returns to each subscriber the consensus price, which is usually an arithmetical average of the data after a data cleansing routine has been employed to eliminate outliers. For some markets, such as for exotic derivatives, consensus prices might constitute the best available data. However, many factors are considered when assessing the representational faithfulness of the consensus prices including, for example:
- Whether the prices submitted by the subscribers reflect actual transactions or just indicative prices based on their own valuation techniques.
 - The number of sources from which prices have been obtained.
 - The quality of the sources used by the consensus pricing service.
 - Whether participants include leading market participants
58. Typically consensus prices are only available to subscribers who have submitted their own prices to the service. Accordingly not all entities will have direct access to consensus prices. Because a subscriber generally cannot know how the prices submitted were estimated, other sources of evidence in addition to information from consensus pricing services may be needed for management to support their valuation. In particular, this may be the case if the sources are providing indicative prices based on their own valuation techniques and management is unable

to obtain an understanding of how these sources calculated their prices.

Brokers Providing Broker Quotes

59. As brokers provide quotes only as an incidental service for their clients, quotes they provide differ in many respects from prices obtained in pricing services. Brokers may be unwilling to provide information about the process used to develop their quote, but may have access to information on transactions about which a pricing service may not be aware. Broker quotes may be executable or indicative. Indicative quotes are a broker's best estimate of fair value, whereas an executable quote shows that the broker is willing to transact at this price. Executable quotes are strong evidence of fair value. Indicative quotes are less so because of the lack of transparency into the methods used by the broker to establish the quote. In addition the rigor of controls over the brokers' quote often will differ depending on whether the broker also holds the same security in its own portfolio. Broker quotes are often used for securities with level 3 inputs and sometimes may be the only external information available.