ISAP 1A

International Standard of Actuarial Practice 1A
Governance of Models
(ISAP 1A)

Adopted by the IAA Council

21 November 2016

International Actuarial Association | Association Actuarielle Internationale

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Preface

This International Standard of Actuarial Practice (ISAP) is a model for actuarial standard-setting bodies to consider.

The International Actuarial Association (IAA) encourages relevant actuarial standard-setting bodies to maintain a standard or set of standards that is substantially consistent with this ISAP to the extent that the content of this ISAP is appropriate for actuaries in their jurisdiction. This can be achieved in many ways, including:

- Adopting this ISAP as a standard with only the modifications in the Drafting Notes;
- Customizing this ISAP by revising the text of the ISAP to the extent deemed appropriate by the standard-setting body while ensuring that the resulting standard or set of standards is substantially consistent with this ISAP;
- Endorsing this ISAP by declaring that this ISAP is appropriate for use in certain clearly defined circumstances;
- Modifying existing standards to obtain substantial consistency with this ISAP; or
- Confirming that existing standards are already substantially consistent with this ISAP.

A standard or set of standards that is promulgated by a standard-setting body is considered to be substantially consistent with this ISAP if:

- There are no material gaps in the standard(s) in respect of the principles set out in this ISAP; and
- The standard or set of standards does not contradict this ISAP.

If an actuarial standard-setting body wishes to adopt or endorse this ISAP, it is essential to ensure that existing standards are substantially consistent with ISAP 1 as this ISAP relies upon ISAP 1 in many respects. Likewise, any customization of this ISAP, or modification of existing standards to obtain substantial consistency with this ISAP, should recognize the important fact that this ISAP relies upon ISAP 1 in many respects.

If this ISAP is translated for the purposes of adoption, the adopting body should select three verbs that embody the concepts of "must", "should", and "may", as described in paragraph 1.6. Language of ISAP 1, even if such verbs are not the literal translation of "must", "should", and "may".

This ISAP is a model standard of actuarial practice and, as such, is not binding on any actuary.

This ISAP was adopted by the IAA Council in November 2016.

[Drafting Notes: when an actuarial standard-setting organization adopts this standard it should:

1. *Replace "ISAP" throughout the document with the local standard name, if applicable;*
2. *Modify references to ISAP 1 in paragraph 1.3. to point to the local standard(s) that are substantially consistent with ISAP 1, rather than referring to ISAP 1 directly, if appropriate;*
3. *Choose the appropriate phrase and date in paragraph 1.5.;*
4. *Review this standard for, and resolve, any conflicts with the local law and code of professional conduct; and*

5. Delete this preface (including these drafting notes) and the footnote associated with paragraph 1.5.]

Section 1. General

1.1. Purpose – This ISAP provides guidance to actuaries on model governance when performing actuarial services involving models, to give intended users confidence that:

- Actuarial services are carried out professionally and with due care;
- The results are relevant to their needs, are presented clearly and understandably, and are complete; and
- The assumptions and methodology (including, but not limited to, models and modelling techniques) used are disclosed appropriately.

This ISAP addresses how modelling activities in which an actuary may be involved should be governed, rather than how these activities should be performed.

1.2. Scope – This ISAP applies to all models that support an entity's decision making. It provides guidance to actuaries on appropriate model governance to manage the risks inherent in selecting an existing model, modifying an existing model, developing a new model, or using a model.

1.3. Relationship to ISAP 1 – Compliance with ISAP 1 is a prerequisite to compliance with this ISAP. References in ISAP 1 to "this ISAP" should be interpreted as applying equally to this ISAP 1A, where appropriate.

1.4. Defined Terms – This ISAP uses various terms whose specific meanings are defined in the Glossary. These terms are highlighted in the text with a dashed underscore and in blue, which is a hyperlink to the definition (e.g., actuary).

1.5. Effective Date – This ISAP is effective for {actuarial services performed/actuarial services commenced/actuarial services performed relevant to an event}[1] on or after [Date].

[1] *[Phrase to be selected and date to be inserted by standard-setter adopting or endorsing this ISAP.]*

Section 2. Appropriate Practices

2.1. Overview – Model governance is important for all models, from those using simple spreadsheets to those including complex simulations. The level of governance should be proportionate to the risk to the intended user as a result of an incorrect conclusion being drawn from the results of the model.

The actuary involved in selecting, modifying, developing, or using models should:

2.1.1. Be satisfied that there is in place an appropriate model risk management framework that addresses identification of model risks, assessment of these risks, and appropriate actions to mitigate these risks such as adequate model validation, documentation, and process controls.

2.1.2. Be satisfied that an appropriate model validation has taken place. For the purpose of this standard, validation includes assessments that the:

- Model reasonably fits its intended purpose. Items that the actuary should consider, if applicable, include the availability, granularity, and quality of data and inputs required by the model, the appropriateness of the relationships recognized, and the model's ability to generate an appropriate range of results around expected values;
- Model meets its specifications; and
- Results of the model can be appropriately reproduced.

The validation should be performed by individual(s) who did not develop the model, unless to do so imposes a burden that is disproportionate to the model risk.

2.1.3. Understand the context in which the model will be used, how model input will be provided, and how the actuary expects the results of the model will be used.

2.2. Selecting an Existing Model – The actuary who selects an existing model (whether developed in-house or by a third party) should:

2.2.1. Understand the model.

2.2.2. Understand the conditions under which it is appropriate for the model to be used, including any limitations of the model.

2.2.3. Be satisfied that there is adequate documentation of the model construction and operation (including where appropriate scope, purpose, methodology, statistical quality, calibration, and fitness for intended purpose), and of the conditions under which it is appropriate to use the model, including any limitations of the model.

2.3. Modifying an Existing Model – The actuary who modifies an existing model should:

2.3.1. Understand the model.

2.3.2. Document, as appropriate, the changes made to, and any material impact of the changes on, the model's scope, purpose, methodology, statistical quality, calibration, fitness for intended purpose, and conditions under which it is appropriate to use the model, including any limitations of the model.

2.3.3. Be satisfied that an appropriate change control process is in place for the model. A change control process avoids unauthorized changes to the model, documents any changes made, and allows any changes to be reversed.

2.4. Developing a New Model – The actuary who develops a new model should:

2.4.1. Document, as appropriate, the model design, construction, and operation (including where appropriate scope, purpose, methodology, statistical quality, calibration, and fitness for intended purpose), and conditions under which it is appropriate to use the model, including any limitations of the model.

2.5. Using a Model – The actuary who uses a model should:

2.5.1. Understand the model.

2.5.2. Be satisfied that the conditions to use the model are met.

2.5.3. Be satisfied that there are appropriate controls on inputs and outputs of the model.

2.5.4. Consider whenever the model is used, whether the validation described in 2.1.2. should be redone in whole or in part.

2.5.5. Understand and, if appropriate, explain material differences between different runs of the model, and be satisfied that there is an adequate control process for production runs. In the case of stochastic models, be satisfied that a sufficient number of runs of the model are made, and understand the material differences between different runs of the model.

2.5.6. Understand management actions or responses assumed within the model and consider whether any changes to the model are needed.

2.5.7. Document, as appropriate, limitations, inputs, key assumptions, intended uses, and model output.

Section 3. Communication

3.1. Disclosures – In addition to complying with ISAP 1 Section 3. Communication, the actuary should include in the actuary's report any disclosures that the actuary considers to be appropriate so that the intended users of the model or its results are able to understand the:

a. Limitations and uncertainties, and their implications; and

b. Management actions or responses assumed in the model, and their implications.