

This document contains the exposure drafts of the proposed ISAP 1A–Governance of Models. Please review this exposure draft and determine within your association how you wish to address the issues it covers. Comments (from your organization, your members, or other parties to which you forward these exposure drafts) should be addressed to [ISAP1A.comments@actuaries.org](mailto:ISAP1A.comments@actuaries.org) with “ISAP 1A” in the email header. The comment should make clear if it is a personal response or one representing a particular association, standard-setter, or other entity.

Comments are most helpful if they:

- a. Comment on the questions as stated in the transmittal memo and the comment template;
- b. Indicate the specific paragraph or group of paragraphs to which they relate;
- c. Contain a clear rationale; and
- d. Include any alternative that the IAA should consider, if applicable within the scope of the Statement of Intent for ISAP 1A.

The preferred format for submitting comments is the comment template provided herewith, attached to an e-mail. If a markup of the exposure drafts is also submitted we recommend using the Comment feature liberally, giving reasons for proposing the change. All comments will normally be posted to the International Actuarial Association website identifying the commenter(s). However, in exceptional cases, in response to a request which the IAA Secretariat is satisfied is for a valid reason, comments may be either posted to the website anonymously or withheld from the website.

**The deadline for comments to be considered by the drafting committee is 31 March 2016.**

This document was approved for exposure by the Actuarial Standards Committee on 29 September 2015.



**ASSOCIATION ACTUARIELLE INTERNATIONALE  
INTERNATIONAL ACTUARIAL ASSOCIATION**

**Exposure Draft of Proposed  
International Standard of Actuarial Practice 1A  
(ISAP 1A)  
Governance of Models**

**NOTE:** Defined terms in this Exposure Draft are marked in blue coloured text with dotted underline. The defined terms in the approved final ISAP will have hyperlinks to the relevant definition in the Glossary. Please note that the hyperlinks have not been created in this Exposure Draft.

**Developed by the ISAP 1A Task Force of the  
Actuarial Standards Committee**

**1 October 2015**



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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 binding upon an [actuary](#) only if so directed by the [actuary](#)'s standard-setting body or if the [actuary](#) states that some or all of the [work](#) has been performed in compliance with this ISAP (e.g., if the [actuary](#) is directed by the [principal](#) to comply with this ISAP).**

This ISAP was adopted by the [IAA](#) Council in [month year].

*[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](#) when performing [actuarial services](#) involving the development or use of [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 ~~includes all necessary information for the actuary nothing is omitted that would be necessary for their needs~~ [are complete](#)<sup>[A1]</sup>; and
  - The assumptions and methodology (including [and focused on](#), but not limited to,<sup>[A2]</sup> [models](#) and modelling techniques) used are disclosed appropriately [in the actuary's report, supplemented if feasible e.g. by information on the governance / organizational embedding of the model](#).
- 1.2. Scope** – This ISAP provides guidance on appropriate [model governance](#) to manage the risks inherent in developing or using [models](#).
- 1.3. Relationship to ISAP 1** – Where possible, this ISAP does not repeat guidance already provided in [ISAP 1](#). Any [actuary](#) who asserts compliance with this ISAP (as a model standard) must also comply with [ISAP 1](#). 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}<sup>1</sup> on or after [Date].

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<sup>1</sup> [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 simple spreadsheets to complex simulations<sup>[A3]</sup>.<sup>[A4]</sup> The level of governance should be proportionate to the risks associated with inappropriate processes used in modelling. Also, it might not be reasonable to apply all of the below mentioned requirements for to each company<sup>[A5]</sup> purpose and each model.

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

### 2.2. Selecting Quality standards for an Existing Models<sup>[A6]</sup>

If the actuary is selecting an existing model (whether developed in-house or by a third party<sup>[A7]</sup>) the actuary should consider<sup>[A8]</sup> the following quality standards in the evaluation and trigger remediation actions if not all of them are fulfilled:

- 2.2.1. Be satisfied that the capability of the model is consistent with the intended application, and the model is fit for this purpose. Examples of items that the actuary should consider, if applicable, include but are not limited to the data that might be available, the granularity and the quality of inputs, the appropriateness of the relationships recognized, the statistical and actuarial methods and techniques used<sup>[A9]</sup> and the model's ability to capture possible volatility around expected values<sup>[A10]</sup>.
- 2.2.2. Understand<sup>[A11]</sup> the conditions under which the developer intended the model to be used, including any limitation of the model.
- 2.2.3. Be satisfied that there is adequate documentation of the model construction, including scope, purpose of the model, methodology and algorithms, statistical quality, and calibration.
- 2.2.4. Be satisfied that the model has been appropriately reviewed and validated by a person/team not involved in developing the model, or otherwise arrange such review and validation.<sup>[A12]</sup> This validation should<sup>[A13]</sup> include an assessment that the model reasonably delivers its intended purpose and that the results of the model can be appropriately reproduced.

### 2.3. Modifying an Existing Model

If the actuary modifies an existing model, the actuary should<sup>[A14]</sup>:

- 2.3.1. Document any material impact of the changes on the model's scope, purpose, statistical quality, calibration, and suitability for purpose.
- 2.3.2. Be satisfied that the modifications are appropriately reviewed and validated.<sup>[A15]</sup>
- 2.3.3. Be satisfied that an adequate change control process is in place for the model. A change control process usually restricts unauthorized changes to the model, documents any changes made, and allows any changes to be rolled back<sup>[A16]</sup>.

### 2.4. Building a New Model<sup>[A17]</sup>

If the actuary develops a new model, the actuary should<sup>[A18]</sup>:

- 2.4.1. Document the model construction, including scope, purpose of the model, methodology and algorithms, statistical quality, calibration, and fitness for intended purpose.<sup>[A19]</sup>

- 2.4.2. Be satisfied that there are appropriate validation processes throughout the model development process.<sup>[A20]</sup>
- 2.4.3. Be satisfied that there is an appropriate model development and change control process that is followed.<sup>[A21][A22]</sup>

## 2.5. Using a Model<sup>[A23]</sup>

The actuary should:

- 2.5.1. Be satisfied that there is appropriate model risk management in place, which includes identifying model risk, the assessment of these risks and mitigation actions which may need to be carried out.
- 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. Understand and, if appropriate, explain material differences between different runs of the model. In the case of stochastic<sup>[A24]</sup> models, be satisfied that there is an adequate control process for production runs<sup>[A25]</sup> and that a sufficient number of runs of the model<sup>[A26]</sup> are made, and understand the material differences between different runs of the model.
- 2.5.5. Maintain adequate documentation of inputs, assumptions, expected values, intended uses, and model output.
- 2.5.5.2.5.6. Be satisfied that the model is appropriately embedded in decision making<sup>[A27][A28]</sup>

**Section 3. Communication**

3.1 The actuary should make any disclosures which the actuary considers to be appropriate so that the intended users are able to understand limitations and uncertainty in the results presented.<sup>[A29]</sup>

~~3.13.2~~ The actuary should design the communication with respect to the addressees.