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International Actuarial Association
Association Actuarielle Internationale

Governance of Models

12th National Actuarial Congress

Gábor Hanák

President-elect of the IAA (2018)

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International Standards of Actuarial Practice (ISAPs)

This presentation is based on ISAP 1A and other materials provided by the Actuarial Standards Committee of the IAA

What are ISAPs?

- ISAPs are models for actuarial standard-setting bodies to consider
- ISAPs are model standards of actuarial practice and, as such, **are not binding on any actuary**
- The IAA encourages relevant actuarial standard-setting bodies to maintain standard or sets of standards that are substantially consistent with ISAPs to the extent that the contents of the ISAPs are appropriate for actuaries in their jurisdiction. This can be achieved in many ways:

What are ISAPs?

Consistency can be achieved in many ways:

- Adopting an ISAP as a standard;
- Customizing an ISAP by revising the text of the ISAP but remaining substantially consistent with it;
- Endorsing an ISAP by declaring that the ISAP is appropriate for use in certain clearly defined circumstances;
- Modifying existing standards to obtain substantial consistency with the ISAP;
or
- Confirming that existing standards are already substantially consistent with the ISAP

ISAP 1 and ISAP 1A

- ISAP 1 *General Actuarial Practice* is one of the fundamental model standards of the IAA
- The other one is ISAP 1A *Governance of Models*
- All other ISAPs rely upon ISAP 1 and ISAP 1A
- There is a proposal to merge ISAP 1A into ISAP 1



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ISAP 1A

Governance of Models

Adopted by the IAA Council on 21 November 2016

ISAP 1A: What problem was addressed?

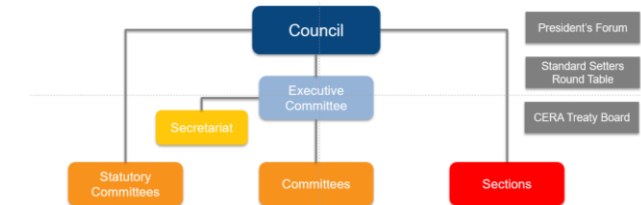
- Governance of models has developed into a hot topic the adoption of ISAP 1 in 2012
- All other ISAPs should be concerned with it
- Choice: put guidance on model governance in one ISAP or in each of the ISAPs with repetition and possibly conflicting guidance

Overview of ISAP 1A

- Focus is Governance of Models, not Modeling
- Purpose of Model Governance is to prevent inappropriate modeling
- Why “1A” not revision of “1”
- Scope is governance of virtually all models that support decision making
- Relies on the Principle of Proportionality

What is excluded?

- How to model
- Education on the modeling process



ISAP 1A Contents

Section 1 General

Section 2 Appropriate Practices

2.1 Overview

2.2 Selecting an Existing Model

2.3 Modifying an Existing Model

2.4 Building a New Model

2.5 Using a Model

Section 3 Communication

Key elements - Overview

- The actuary should
 - Be satisfied that there is in place an appropriate model risk management framework
 - Be satisfied that an appropriate model validation has taken place
 - The model reasonably fits its intended purpose
 - The model meets its specifications; and
 - The results can be appropriately reproduced

Key elements – Selecting an Existing Model

- The actuary who selects an existing model should
 - Understand the model
 - Understand the conditions under which it is appropriate for the model to be used, including any limitations of the model
 - Be satisfied that there is adequate documentation of the model construction and operation

Key elements – Modifying an Existing Model

- The actuary who modifies an existing model should
 - Understand the model
 - Document, as appropriate, the changes made to, and any material impact of the changes on, the model, including any limitations of the model
 - Be satisfied that an appropriate change control process is in place for the model

Key elements – Building a New Model

- The actuary who develops a new model should
 - Document, as appropriate, the model design, construction, and operation, and conditions under which it is appropriate to use the model, including any limitations of the model

Key elements – Using a Model

- The actuary who uses a model should
 - Understand the model
 - Be satisfied that the conditions to use the model are met
 - Be satisfied that there are appropriate controls on inputs and outputs of the model
 - Consider whenever the model is used, whether the validation should be redone in whole or in part

Key elements – Using a Model

- The actuary who uses a model should
 - 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.

Key elements – Using a Model

- The actuary who uses a model should
 - Understand management actions or responses assumed within the model and consider whether any changes to the model are needed
 - Document, as appropriate, limitations, inputs, key assumptions, intended uses, and model output

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Thank you for your attention Questions?



International Actuarial Association
Association Actuarielle Internationale

1203-99 Metcalfe, Ottawa ON K1P 6L7 Canada

Tel: +1-613-236-0886 **Fax:** +1-613-236-1386

Email: secretariat@actuaries.org

www.actuaries.org

