

APN 902  
Governance of Models

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## Preface

This generic guidance document supports the *Actuarial Society's* (the Society) strategic objective to promote high quality professional *actuarial work*. Building on the Principles of Professionalism, which also directly underpin the Society's Code of Conduct, it is congruent with the Code of Conduct.

APN 902 supports SAP 901. It covers all *actuarial work* using models and provides professional guidance on model governance to supplement the Code of Conduct. This SAP is based on International Standard of Actuarial Practice 1A (ISAP 1A), which was approved by the Council of the International Actuarial Association in 2016. APN 902 helps clarify what is expected of the professional actuary regarding model governance.

APNs provide advice to members to guide them in their relevant area of practice. Failure to comply with an APN will not in itself constitute grounds for complaint under the disciplinary procedures. However, the Committee investigating an allegation of unprofessional conduct will take into account the extent to which a member complied with an APN in this category. It is recommended that any departure from an APN be disclosed.

Words in italics are defined in the separate Glossary.

1 June 2017.

## Section 1. General

- 1.1. Purpose** – This APN 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 APN 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 APN 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 SAP 901** – Compliance with [SAP 901](#) is a prerequisite to compliance with this APN. References in [SAP 901](#) to “this SAP” should be interpreted as applying equally to this [APN 902](#), where appropriate.
- 1.4. Defined Terms** – This APN 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 APN is effective for [actuarial services](#) performed on or after its date of issue in the preface above.

## 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 risks associated with inappropriate processes used in modelling.

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. Examples of 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 a team that 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 [SAP 901](#) 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.

Version 1: Effective from 1 June 2017.