



Financial Reporting Council

Technical Actuarial Standard 100: General Actuarial Standards

Version 2.0 – Exposure Draft

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1 Introduction

- 1.1 Technical Actuarial Standard 100 (TAS 100) applies to **technical actuarial work** which is completed on or after DD MMMM 20YY.
- 1.2 Terms in bold are defined in the Glossary of defined terms used in Technical Actuarial Standard 100, appended to this standard.

Purpose

- 1.3 TASs promote high quality **technical actuarial work**, supporting the **reliability objective**:

To allow the **intended user** to place a high degree of reliance on **actuarial information**, practitioners **must** ensure the **actuarial information**, including the communication of any inherent uncertainty, is relevant, based on transparent assumptions, complete and comprehensible.

Scope and compliance

- 1.4 TAS 100 **must** be applied by all members of the Institute and Faculty of Actuaries (IFoA) carrying out **technical actuarial work** within the **geographic scope**. Wider adoption is encouraged and other relevant regulators and contracting parties may require entities and individuals who are not members of the IFoA to comply with TAS 100.
- 1.5 **Technical actuarial work** that is **material must** include a statement by the practitioner confirming compliance with TAS 100. Any caveat, qualification or limitation in that statement **must** be justified to the **intended user**. The evidence demonstrating compliance **must** be available to the **intended user**, if requested.

General Provisions

- 1.6 This standard consists of Principles and related Application statements¹. The Principles set out mandatory requirements.
- 1.7 The Application statements set out regulatory expectations. Practitioners **must** have regard to these regulatory expectations; divergence may be acceptable but **must** be justified. The justification **must** demonstrate how compliance with the relevant Principles has been achieved despite not meeting regulatory expectations.
- 1.8 In applying judgement to the application of the TASs it is important to be guided by the **reliability objective**.

¹ A cross reference to the related Application statement(s) is included at the end of the relevant Principle or provision and a cross reference to the related Principle or provision(s) at the end of each Application statement.

2 Principles

Principle 1 Risk identification

Practitioners carrying out **technical actuarial work must** identify and have regard to all **material** factors and **material** risks which may affect, or have the potential to affect, their **technical actuarial work** and which the practitioner might reasonably be expected to know about at the time of carrying out the work.

- P1.1 Practitioners **must** allow in their **technical actuarial work** for all such **material** factors or **material** risks. **1A1.1-A1.4**
- P1.2 Practitioners **must** consider the dependencies between such **material** factors, **material** risks, or both. **A1.5**
- P1.3 Practitioners **must** consider the timeframe over which such **material** factors and **material** risks will emerge and whether their dependencies, nature or relative importance may change within that timeframe.

Principle 2 Judgement

Practitioners **must** exercise judgement in a reasoned and justifiable manner, so that the **intended user** can rely on the resulting **actuarial information**.

- P2.1 Practitioners **must** base judgement on supporting justification. **1A2.1**
- P2.2 Practitioners exercising **material** judgement **must** consider alternative methodologies, **models, data** and assumptions.
- P2.3 Where the practitioner exercises judgement that is **material** to and formed the basis for an implemented decision that persists for a substantial period, that judgement **must** be reviewed periodically while the practitioner remains responsible to ensure that the implemented decision remains appropriate.
- P2.4 When a practitioner exercises judgements that are **material** (either individually or when combined), the practitioner **must** consider the sensitivity of conclusions to the judgement. **1A2.2**

Principle 3 Data

Data used by practitioners carrying out **technical actuarial work must** be sufficiently accurate, complete and appropriate, so that the **intended user** can rely on the resulting **actuarial information**.

- P3.1 Practitioners **must** ensure effective checks and controls are applied to **data**. **1A3.1, 1A3.2, 1A3.5**
- P3.2 Practitioners **must** investigate **data** for any present or potential future **biases**. **1A3.3, 1A3.4, 1A3.5**

Principle 4 Assumptions

Assumptions used, or proposed for use, by practitioners in their **technical actuarial work must** be appropriate, so that the **intended user** can rely on the resulting **actuarial information**.

- P4.1 Practitioners **must** investigate assumptions used for any present or potential future unintended **biases**. **1A4.1, 1A4.2**
- P4.2 Unless set by the **intended user**, a third party or by regulation, assumptions used by practitioners **must** be consistent with each other and **must** be derived from as much relevant information as is sufficient. **1A4.3**

- P4.3 The practitioner **must** consider whether the set of assumptions when considered in aggregate is reasonable.
- P4.4 Where an assumption is set by the **intended user** or a third party and the practitioner considers it not to be reasonable for its purpose the practitioner **must** carry out an indicative assessment of the impact on **actuarial information**.

Principle 5 Models

Practitioners **must** ensure **models** used in their **technical actuarial work** are fit for purpose and subject to sufficient controls and testing, so that the **intended user** can rely on the resulting **actuarial information**.

- P5.1 Practitioners **must** ensure they understand the **models** used in their **technical actuarial work**, including intended uses and limitations.
- P5.2 Practitioners **must** ensure that the **models** they use for **technical actuarial work** have in place an appropriate level of **model governance**, including **validation** and a **change control process**.
- P5.3 Practitioners **must** consider sufficiently whether **models** used contain any present or potential future unintended **biases**.^{1A5.1, 1A5.2}
- P5.4 Where **material** limitations exist in **models** or methodologies used, the practitioner **must** assess the implications of those **material** limitations.
- P5.5 Practitioners **must** ensure that it is possible either to reproduce the output from the **models** they use for **technical actuarial work** by re-running the **model** using the same inputs or to explain any differences in the outputs.
- P5.6 Where the **model** incorporates allowances for actions or responses by management, the **intended user** or other parties, the practitioner **must** assess the broad implications of such allowances.

Principle 6 Documentation

Practitioners **must** ensure **documentation** relating to their **technical actuarial work** contains sufficient detail to allow persons responsible for reviewing, auditing or validating the **technical actuarial work** to understand the matters involved and assess the **judgements** made.

- P6.1 Practitioners **must** ensure **documentation** includes the following:
- Judgements and their supporting justifications;
 - Data** used ^{1A6.1};
 - Assumptions used ^{1A6.2};
 - How a **model** used is fit for purpose and what that **model** does, including intended uses and limitations of the **model**;
 - Model governance** and associated **model** checks and controls ^{1A6.3};
 - Allowances in the **model** for assumed actions or responses assumed by management, the **intended user** or other parties.
- P6.2 In case of a deviation from regulatory expectations, practitioners **must document** the required justification (see 1.7) and **must** make it available to the **intended user** or a relevant regulator, if requested.

Principle 7 Communications

Practitioners' **communications must** be clear, comprehensive and comprehensible, so that the **intended user** can reasonably be expected to understand matters relevant to **actuarial information** and make informed decisions.

¹Application 7

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- P7.1 Practitioners **must** ensure the style, structure and content of **communications** is suited to the skills, understanding and levels of relevant technical knowledge of the **intended user**.
- P7.2 In support of the **reliability objective**, practitioners' **communications must** include sufficient information in support each of principles 1 to 5. 1A7.2-1A7.6
- P7.3 The practitioner's **communications must** exclude information that is not **material** if that information obscures **material actuarial information** unless the inclusion of such information is a regulatory requirement.
- P7.4 Practitioners' **communications must** state the **intended user**, the standpoint from which the practitioner is acting, the scope and purpose of the relevant **technical actuarial work** and who commissioned that **technical actuarial work**.
- P7.5 Practitioners **must** confirm in written form any **material actuarial information** provided orally.
- P7.6 If a practitioner responsible for a **communication** becomes aware of evidence of that **communication** not being understood by the **intended user**, that practitioner **must** provide clarification or information to correct the misunderstanding.

3 Application

Application 1 Risk identification

- A1.1 The **material** risks to be allowed for by practitioners in their **technical actuarial work should** include all risks conventionally associated with the relevant **technical actuarial work** (for example: mortality, longevity, interest rates, credit spread, expenses, premium risk, catastrophe risk).^{P1.1}
- A1.2 The **material** factors to be allowed for by practitioners in their **technical actuarial work should** include all internal or external environmental factors which have the potential to influence the **actuarial information** either directly or indirectly. Internal factors may, for example, include management changes, commercial changes or changes to risk mitigation measures. External factors may, for example, include climate change, technological, economic, political and geopolitical, regulatory and legislative changes.^{P1.1}
- A1.3 The practitioner **should** take account of any relevant legal opinions relating to the **technical actuarial work** or existing practices relating to the exercise of discretion.^{P1.1}
- A1.4 Practitioners' **technical actuarial work should** consider any actions which may or may not be taken by management, the **intended user** or other parties in response to risks emerging.^{P1.1}
- A1.5 When considering dependencies between different **material** factors or **material** risks, the practitioner **should** consider whether the risks or factors are systemic (undiversifiable) in nature. ^{P1.2}

Application 2 Judgement

- A2.1 The practitioner's supporting justification for a particular judgement **should** allow the **intended user** and other relevant parties (such as a peer reviewer, auditor or regulator) to conclude that the particular judgement is reasonable.^{P2.1}
- A2.2 The practitioner's assessment of the sensitivity of conclusions to **material** judgements exercised **should** consider the **materiality** of the difference in outcome had an alternative judgement been exercised.^{P2.4}

Application 3 Data

- A3.1 The practitioner **should** ensure that the checks and controls applied to **data** are sufficient to establish whether the **data** is sufficiently accurate, complete and appropriate. ^{P3.1}
- A3.2 Practitioners **should** improve **data** that is insufficient or unreliable by adjusting or supplementing it. ^{P3.1}
- A3.3 In assessing whether **data** contains **bias**, the practitioner **should** consider whether any of the factors below may mean that the **data** used are not representative of the population or events of study:
- certain elements of the dataset are over- or under-represented;
 - modifications such as interpolation, extrapolation, adjustment or discarding of outliers were made to the dataset;
 - the **data** includes content which is subjective and / or not supported by statistically credible information.^{P3.2}
- A3.4 If **biases** are found, the practitioner **should** take reasonable steps to improve the **data** by adjusting or supplementing **data**.^{P3.2}
- A3.5 Where limitations in **actuarial information** arise from the use of **data** that is insufficient, unreliable or contains **bias**, the practitioner **should** assess the impact of these limitations. ^{P3.1, P3.2}

Application 4 Assumptions

- A4.1 In assessing whether assumptions contain **bias** the practitioner **should** consider whether
- any underlying **data** is **biased**;
 - assumptions contain adjustment to reflect a desired outcome. **P4.1**
- A4.2 If unintended **biases** are found, practitioners **should** improve assumptions by adjusting or supplementing these. Practitioners **should** assess the impact on **actuarial information** of any remaining actual or potential **bias**.**P4.1**
- A4.3 If insufficient information is available to reliably set an assumption then the practitioner **should** assess the **materiality** of that insufficiency by considering the range of possible alternative outcomes.**P4.2**

Application 5 Models

- A5.1 In assessing whether **models** contain unintended **bias**, the practitioner **should** consider whether
- the **model** leads to consistent overestimation or underestimation;
 - the **model** contains systematic error, meaning the result is not representative of the aspect of the world that it is designed to **model**.**P5.3**
- A5.2 If unintended **biases** are found practitioners **should** improve the **model** by adjusting or supplementing it. Where actual or potential **model bias** gives rise to **material** limitations in **actuarial information**, the practitioner **should** assess the implications.**P5.3**

Application 6 Documentation

- A6.1 The practitioner's **documentation** of **data** used **should** include:
- sources and characteristics of **data** and rationale for the selection of **data** ;
 - details of grouping of **data**, including the rationale, the criteria used to determine the groups and the resultant groupings; and the **data** points removed and the rationale for their removal;
 - checks and controls that have been applied to that **data**;
 - the source and justification of any **data** proxies;
 - any actions taken to improve **biased**, insufficient or unreliable **data**. **P6.1**
- A6.2 The practitioner's **documentation** of assumptions used **should** include:
- their rationale, including consideration of the consistency between individual assumptions;
 - commentary on **bias** in assumptions any actions taken to remove it, where relevant. **P6.1**
- A6.3 The practitioner **should** ensure the **documentation** of **model** checks and controls includes documented **model** instructions designed to manage **model risk**. **P6.1**

Application 7 Communications

- A7.1 Practitioners' **Communications should**
- indicate clearly whether the practitioner is acting to comply with statutory or regulatory obligations and, if so, confirm compliance with them;
 - indicate clearly whether the practitioner is an employee, director or external adviser;
 - include a comparison of results of calculations with the previous exercise carried out for the same purpose with an explanation of any **material** differences;

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- d) where **actuarial information** contains **prudence**, include sufficient information to enable the **intended user** to understand the level of **prudence** in the resulting **actuarial information**, and **should** further include an explanation of, and reason for, any **material** change in the level of **prudence** from the previous exercise carried out for the same purpose;
 - e) clearly define terminology used such as "best estimate", "central estimate" or other similar terms, so that the **intended user** can reasonably be expected to understand the nature of these estimates;
 - f) state any **material** changes or **material** events that are known to have occurred since the effective date of the **data**. Principle 7

A7.2 In support of the risk identification principle, practitioners' **communications should** state the nature and significance of each **material** risk or **material** uncertainty faced by the **entity** in relation to the **technical actuarial work** and explain the approach taken to the risk. P7.2

A7.3 In support of the judgement principle, practitioners' **communications should** include:

- a) details of **material** judgements and the process used to arrive at each judgement. **Material** judgements **should** be explained to the **intended user** or other relevant party;
- b) descriptions of any alternative **models, data** or assumptions considered. If no other alternatives were considered the reason **should** be **communicated**;
- c) sensitivity of results to judgements that are **material** either individually or in combination. P7.2

A7.4 In support of the **data** principle, practitioners' **communications should**:

- a) describe **data** used, the source of **data**, the rationale for the selection of **data**, the checks and controls that have been applied, any **material** uncertainty in **data**, and the approach taken to deal with that **material** uncertainty;
- b) include an explanation of any **material** limitations in **actuarial information** resulting from the use of insufficient or unreliable **data**, or **data** containing actual or potential **biases** and provide an indication of their impact on **actuarial information**;
- c) describe any modifications made to **data** such as interpolation, extrapolation, adjustment or discarding outliers;
- d) include an explanation of any **data** proxies used and describe their rationale;
- e) include a description of any grouping of **data**, including the rationale. P7.2

A7.5 In support of the assumptions principle, practitioners' **communications should**:

- a) state the **material** assumptions describing how they were derived and their rationale including consideration of the consistency of individual assumptions;
- b) describe any change to a **material** assumption used in the previous exercise carried out for the same purpose with an explanation of any **material** difference, and description of any change in the rationale underlying that **material** assumption;
- c) state whether any assumption was set by the **intended user**, a third party or by regulation;
- d) where assumptions were set by the **intended user** or a third party, state whether the assumption is reasonable for the purpose of the **technical actuarial work** and, if not, provide an indication of the impact on **actuarial information**;
- e) include an explanation of any **material** limitations in **actuarial information** resulting from the use of assumptions based on limited information and provide an indication of their impact on **actuarial information**.

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- f) include an explanation of any **material** limitations in **actuarial information** resulting from the use of assumptions containing actual or potential **biases** and provide an indication of their impact on **actuarial information**. **p7.2**

A7.6 In support of the **models** principle, practitioners' **communications should** include:

- a) an explanation of the methodology used and describe its rationale;
- b) an explanation of any change to a methodology used in the previous exercise carried out for the same purpose with an explanation of any **material** difference, and description of any change in the rationale underlying that methodology;
- c) an explanation of intended uses of the **model** and **material** limitations of the methodology or **models** used, and the implications of those **material** limitations;
- d) an explanation of any **material** limitations in **actuarial information** resulting from the use of **models** containing actual or potential **biases** and provide an indication of their impact on **actuarial information**;
- e) a description of any assumed actions or responses by management, the **intended user** or other parties, and the broad implications of these on **actuarial information**;
- f) where the methodology involves quantifying future cashflows, a description of the nature of the cash flows that are quantified, including their timing. **p7.2**

4 Glossary of defined terms used in TAS 100

Terms in **bold** in the text of this TAS 100 are used with the definitions set out below. These terms may also be used in the other TASs with the same meaning.

must	Statements using the word 'must' set out mandatory requirements.
should	<p>Statements using the word 'should' set out regulatory expectations and are intended to assist in compliance with mandatory requirements. Regard must be had to these statements.</p> <p>Deviation may be acceptable but will need to be justified. The justification must demonstrate how compliance with mandatory requirements has been achieved despite not meeting regulatory expectations.</p>
actuarial information	The output of technical actuarial work , including output from a model designed for direct use by the intended user .
bias	A disproportionate weight in favour of or against something.
change control process	A process that: (i) only allows authorised changes to the model ; (ii) documents any changes made, testing carried out, and any material impact on the model or its outputs; and (iii) allows any changes to be reversed.
communications	Actuarial information which meets the reliability objective and is given to the intended user to assist the intended user in making informed decisions.
data	Facts or information usually collected from records or from experience or from observation. Examples include membership or policyholder data , claims data , asset and investment data , operating data (such as administrative or running costs), benefit definitions, and policy terms and conditions.
documentation	Records of facts, opinions, explanations of judgements, and other matters. It is not necessarily provided to the intended user . Documentation is material if it concerns a material matter.
entity	The pension scheme, insurer, funeral plan trust, fund or other body that is the subject of the work being performed.
geographic scope	The intended geographic scope of the TASs is limited to technical actuarial work done in relation to the UK operations of entities, as well as to any overseas operations which report into the UK , within the context of UK law or regulation. This definition of scope applies regardless of the location or domicile of the person carrying out the work.
intended user	A person whose decisions communications are intended (at the time they are provided) to assist.

material	A matter is material if it could, individually or in combination with other matters, influence the decisions to be taken by the intended user . Assessing whether a matter is material is a matter for judgement, requiring consideration of the intended user and the context in which technical actuarial work is performed and communicated.
model	<p>A simplified representation of some aspect of the world.</p> <p>The model produces a set of outputs from inputs in the form of data, assumptions and parameters.</p> <p>The model is defined by a specification that describes the matters that should be represented, the inputs, and the relationships between the inputs, and the resulting outputs.</p> <p>The model is implemented through a set of mathematical formulae and algorithms (e.g. a computer program).</p>
model governance	A set of activities, policies and procedures for identifying, managing and mitigating model risks . Actions to mitigate model risks include clear model ownership and responsibilities, documentation , model validation , and a change control process .
model risk	The risk that models are either incorrectly implemented (with errors) or make use of assumptions that cannot be justified rigorously, or assumptions that do not hold true in a particular context.
prudence	The application of margins for adverse deviations to assumptions or methodology in order to allow for uncertainty in the underlying data and other information, assumptions, or methodology. The application of such margins gives rise to assumptions that contain intended bias . Certain regulators may prescribe the use of prudent assumptions (for example, the Pensions Regulator requires the triennial valuation to be based on prudent assumptions).
reliability objective	To allow the intended user to place a high degree of reliance on actuarial information , practitioners must ensure the actuarial information , including the communication of any inherent uncertainty, is relevant, based on transparent assumptions, complete and comprehensible.
technical actuarial work	<p>Work performed for the intended user:</p> <ul style="list-style-type: none"> (i) where the use of principles and/or techniques of actuarial science is central to the work and which involves the exercise of judgement; or (ii) which the intended user could reasonably regard as technical actuarial work by virtue of the manner of its communication.
validation	The processes and actions verifying that a model is performing as expected and is fit for purpose.



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