



Institute  
and Faculty  
of Actuaries

# Subjecting expert judgements to appropriate scrutiny

FSI Seminar on Solvency & Global  
Capital Standards for Insurers  
3 March 2016, Basel

Roger Austin on behalf of the UK IFoA  
Solvency and Capital Management Working Party



# Agenda

- Introduction and background
- Framework
- Breakout session 1
- Process – using a worked example
- Validation
- Breakout session 2
- Recap of process and conclusions
- Opportunity for discussion
- Paper: <https://www.actuaries.org.uk/documents/expert-judgement>





Institute  
and Faculty  
of Actuaries

## Introduction and background



# Introduction

- What is an expert?
  - “Expert - you will know one when you see one”.
  - Wikipedia definition: “An expert:
    - ...is someone widely recognized as a **reliable** source of **technique** or **skill** whose faculty for judging or deciding rightly, justly, or wisely is accorded authority and status by their peers or the public in a specific well-distinguished domain
    - ...can be believed, by virtue of credential, training, education, profession, publication or experience, to **have special knowledge of a subject beyond that of the average person**, sufficient that others may officially (and legally) rely upon the individual's opinion.”



# Introduction

- So what is expert judgement?
  - Not something new (actuaries have been doing this since the profession started).
  - Important in other professions too (medical, legal, etc).
  - I will confine my comments to insurer's balance sheet.
  - Inherent in wide range of areas e.g. choice of methodology, choice of datasets, how to deal with insufficient / unreliable data, etc.
  - Relevant for various items of the balance sheet (**not just capital**).
  - Relevant for all insurers (**not just those using an internal model**).
- An increasing area of focus for regulators, particularly in the EU with Solvency II Directive.
- Challenging area for many insurers.
- Approach needs to be proportionate.



# Introduction

- What is a model?
- Simplification of reality...
- ...so judgement is inherent in all models.
- Some judgements have small impact; others have significant impact.
- When does a judgement become an “expert judgement”?
- Expert judgement policy should define this, but materiality will be an important factor.



# Background: Solvency II & expert judgement

Level 1

No specific references to expert judgement in the level 1 text

Level 2

“based on the expertise of persons with the relevant knowledge, experience and understanding of the risks inherent in the insurance or reinsurance business” (Article 2)

Level 3

Materiality (Guideline 16)  
Governance (Guideline 17)  
Communication and uncertainty (Guideline 18)  
Documentation (Guideline 19)  
Validation (Guideline 20)



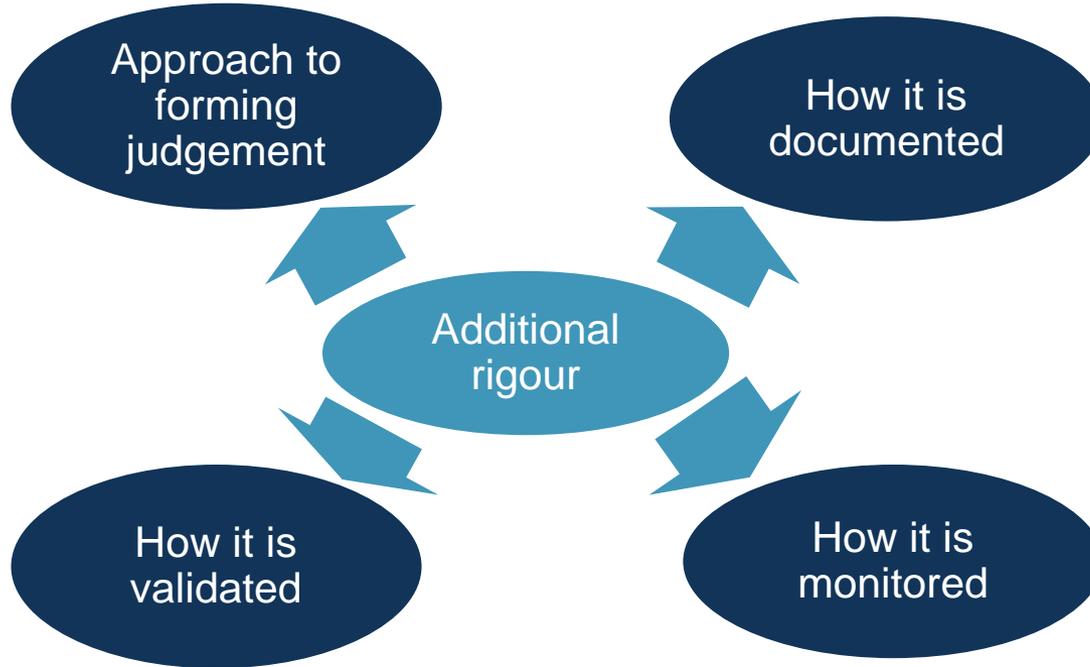
Institute  
and Faculty  
of Actuaries

# Expert judgement versus judgement



# Implications and scope

- So what is the consequence of something being considered expert judgement rather than judgement?



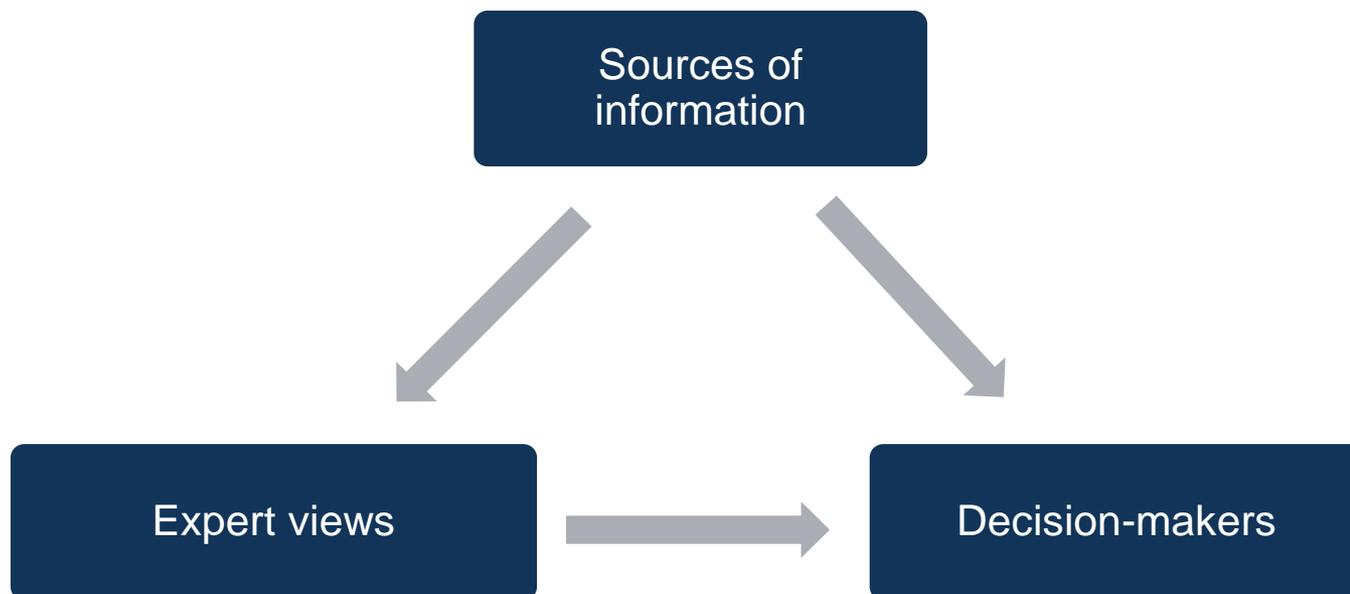
## Key categories of expert judgement

- Methodology
- Assumptions (Inc. parameters)
- Approximations



Institute  
and Faculty  
of Actuaries

# Formation of judgement



- Good process is essential, and needs to be tailored and proportionate in line with materiality.
- In certain circumstances, the experts may also be the decision-makers.





Institute  
and Faculty  
of Actuaries

# Framework



# Framework: Overview

- Expert judgement policy.
- Governance structure.
- Strong process.
- Documentation.
- Appropriate validation.
- **Must be proportionate.**



# Framework: Expert judgement policy

- The expert judgement policy could cover aspects such as:
  - What is meant by expert judgement.
  - When the policy applies and limitations.
  - Interaction with any materiality, proportionality and validation policies.
  - Requirements of the management board in relation to expert judgement.
  - Requirements of executive and operational owners.
  - Documentation requirements.
  - Reporting requirements, including escalation.
  - Requirements on the expert, including defining when an external expert needs to be sought.
  - Required review (both internal and external).
  - Required frequency of refresh and review.



# Framework: Consistency

- It is desirable for the framework to facilitate consistency.
- There are a number of potential dimensions to this e.g.:
  - With other judgements, similar assumptions, similar risks, etc.
  - Over time.
  - Across business units.
  - Across regions.
- Managing and understanding consistency are more important than requiring absolute consistency.
- Consistency helps with overall credibility.



# Framework: Consistency

- Achieving consistency – key elements might include:
  - Consistent process in deciding on expert judgement;
  - Grouping similar areas of judgement and monitoring them using common drivers;
  - Judgements are changed only when there is a compelling reason to do so (e.g. new data);
  - Consistent story across the judgements;
  - Committee reviews of judgements;
  - Validation.
- Expert judgement register could help facilitate this.



# Framework: Expert judgement register

- Useful tool in management of expert judgement.
- Effectively a log of expert judgements.
- May contain aspects such as:
  - Category (for grouping and reporting purposes).
  - Description.
  - Key drivers underlying the judgement.
  - Measure of the materiality of the judgement.
  - Links to relevant documentation.
  - Experts involved.
  - Period of validity of the judgement and scheduled review date.
  - Triggers for non-scheduled review.
  - Operational owner and executive sponsor.





Institute  
and Faculty  
of Actuaries

## Breakout session 1



# Questions for breakout session 1

1. How well-developed is expert judgement thinking within the firms that you regulate?
2. As a regulator, what approach do you currently use for assessing the expert judgements of firms?
3. What do you find most difficult with expert judgement as a regulator?
4. What are the most significant areas of expert judgement?
5. How easy is it for you to get an indication of the sensitivity of the reporting metrics of each firm to expert judgement?
6. Are firms following well-defined processes for expert judgement?



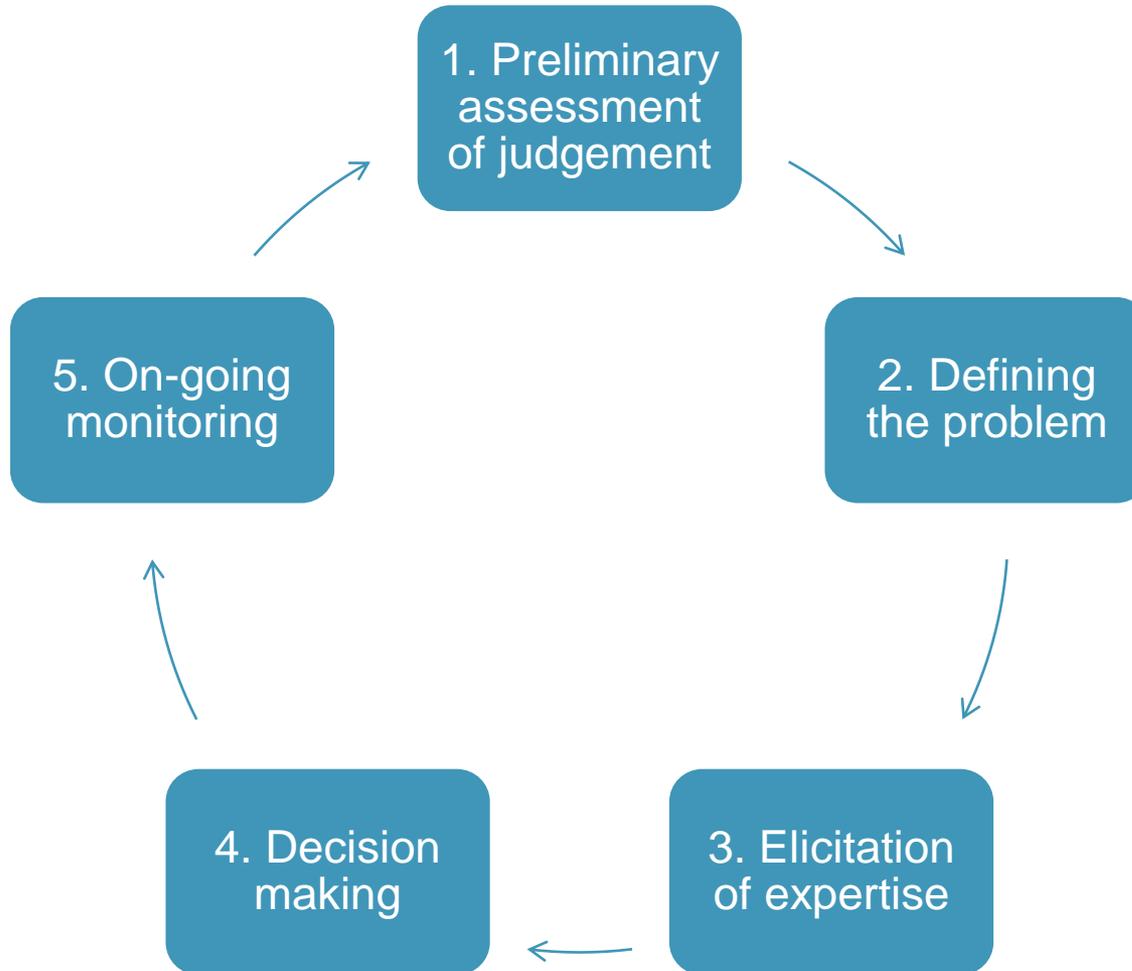


Institute  
and Faculty  
of Actuaries

# Process

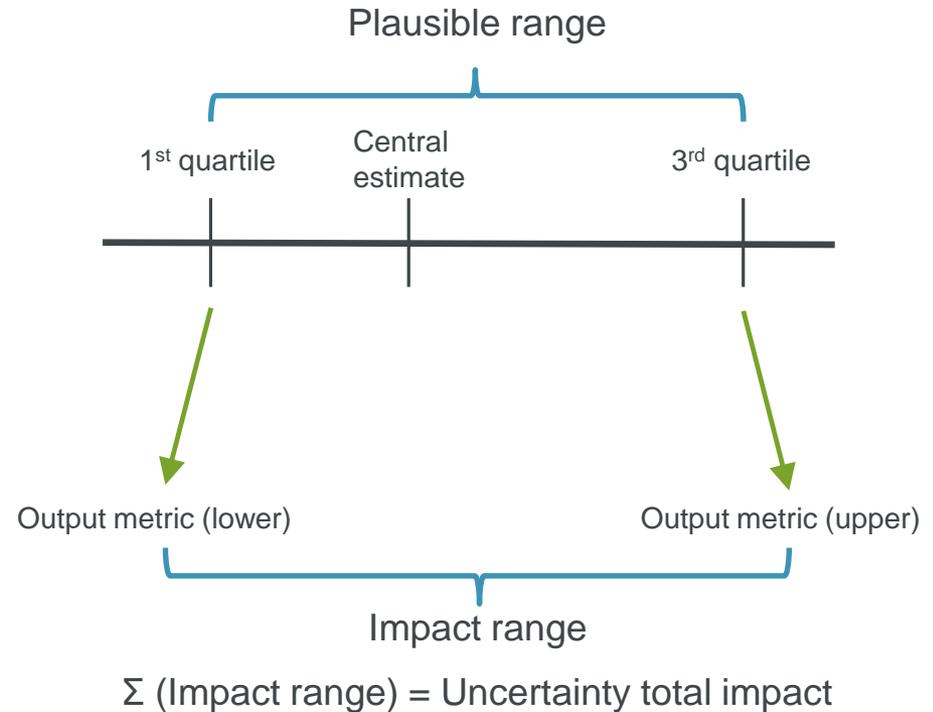


# Process overview



# Some useful concepts

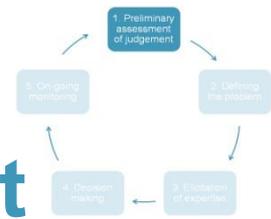
- Plausible range
- Uncertainty total impact
- Regions of expert judgement



# An example

- Situation:
  - New life insurance company (ABC Life).
  - Intends to sell bulk annuity business only.
  - Needs to establish mortality assumptions.





# Preliminary assessment of judgement

Identify judgement

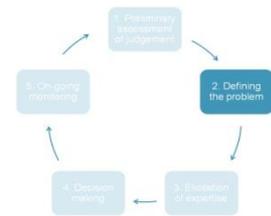
Mortality improvements

Assess whether in the scope of the EJ process

Key risk so inside expert judgement process



Institute  
and Faculty  
of Actuaries



# Defining the problem

- Provide clarity on:

Terminology

Articulate needs

Past practice and drivers for change

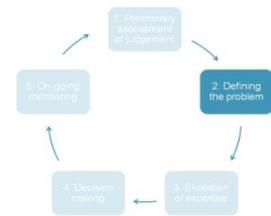
Initial plausible range

Assess potential and appetite for reducing plausible range

Identify experts

Set out brief, clarify and finalise

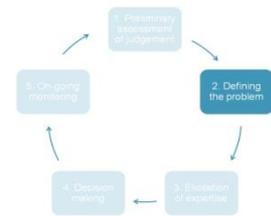




# Defining the problem

<p>Defining the problem</p>	<p>What will death rates be in future years?</p> <ul style="list-style-type: none"> <li>a. base mortality tables</li> <li><b>b. annual improvement rates</b></li> </ul>
<p>Terminology</p>	<p>Defined as the percentage reduction in mortality rate for one year to the next for a given age. Represented in a table showing improvement rate, age and calendar year</p>
<p>Articulate what the EJ relates to and why it is needed</p>	<p><b>Area of judgement:</b> Assumptions</p> <p><b>Metrics of interest:</b> IFRS profit, MCEV profit, statutory balance sheet, Solvency II balance sheet and capital requirements, ICA, internal economic capital forecasts</p>





# Defining the problem

High level understanding of the firm's exposure

Financial losses are incurred when fewer lives die than expected

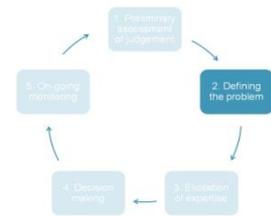
Areas where judgement may need to be broken down

Pricing teams may require more granular assumptions than the financial reporting teams

Trigger of expert judgement

New product launch





# Defining the problem

Previous work and drivers to change

New assumption so no previous judgements to review

Prepare an initial estimate of the plausible range

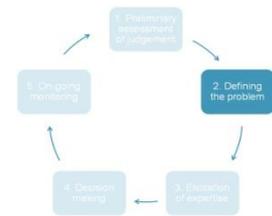
A model is required to project future mortality improvements.

There are a number of options (CMI, 2013)

- The “92” Series and Interim Cohort projections
  - Adjusted interim cohort projections
  - ONS National Population Projections
    - P-spline projections
    - Lee-carter projections
- **The CMI Mortality Projections Model**



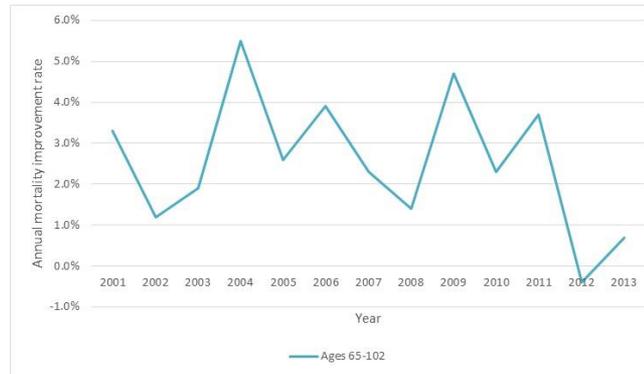
Institute  
and Faculty  
of Actuaries



# Defining the problem

Prepare an initial estimate of the plausible range

## Historical data



Males - observed crude annual mortality improvement rates England & Wales population (CMI, 2014)

### Initial plausible range:

- 2% p.a. improvement rate as central estimate
- 1.5% and 2.5% chosen as the 25<sup>th</sup> and 75<sup>th</sup> percentiles

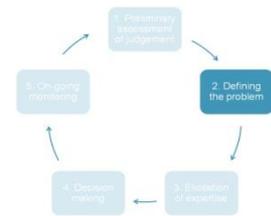
## Benchmarking

Company reference	Male long term rate
A	1.75%
B	1.75%
C	1.90%
D	2.00%
E	2.00%
F	2.00%
G	2.00%
H	2.25%
I	2.25%
J	2.25%
K	2.25%

CMI model long term improvement rates for selected insurers (PRA returns)



Institute and Faculty of Actuaries



# Defining the problem

## Impact of plausible range

Assumed sample portfolio of 10,000 males aged 65 exactly being paid an annuity of £10,000 annually in advance

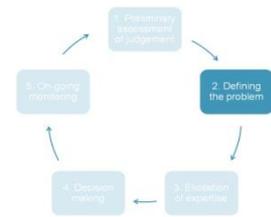
Scenario	Long term rate of improvement	Present value of annuities £m	Difference to best estimate £m	Difference as a percentage of best estimate
25 <sup>th</sup> percentile	1.5%	1,671.5	-26.1	-1.54%
Central estimate	2.0%	1,697.6	-	0%
75 <sup>th</sup> percentile	2.5%	1,724.9	+27.3	+1.60%

## Assess the potential for reducing the plausible range

Further approaches could be used to reduce the plausible range:

- Performing further analysis on past population and industry mortality improvements to extrapolate the long term rates of improvement (10 days, using an internal actuary)
- The use of different data sources including socio-economic specific data (20 days, using an internal actuary)
- ...and others





# Defining the problem

Assess appetite for reducing the plausible range

Balance between  
 A. Desire to reduce the plausible range; and  
 B. Calendar time (time to market), staff time and cost  
 Board decides to spend £50k and 60 person days

Prepare an overview of the need for expert judgement

Key assumption for ABC Life  
 Board is comfortable with a 3 month timescale to conduct further analysis

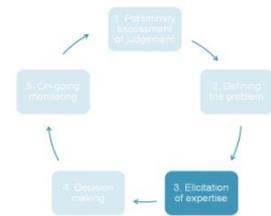
Identify the personnel involved and their roles

- The internal actuary is to explore methods of improving the accuracy of the central estimate and reducing the plausible range
- The external actuary is to provide...
- The medical expert is to provide an expert opinion on...

**Set out brief for experts. Clarify and finalise the brief.**



Institute and Faculty of Actuaries



# Elicitation of expertise

Decide an approach

- I. In writing
- II. Individual interview
- III. Group interview – no decision makers
- IV. Group interview – with decision makers

Other approaches viable

Elicit

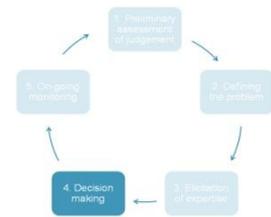
Expert A: 1.75% p.a.  
 Expert B: 2.00% p.a.  
 Expert C: 2.50% p.a.

Consolidate

Elicitation manager consolidates information, highlights key areas of agreement and disagreement between experts



Institute and Faculty of Actuaries



# Decision making

Scrutiny and challenge

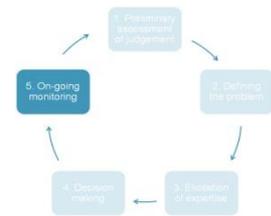
Further challenge by the decision makers.  
Takes account of consistency with other judgements

Decision making

Need to avoid bias.  
Clearly documented thought processes.  
Capture in an expert judgement register.  
Communication back to experts.



Institute  
and Faculty  
of Actuaries



# On-going monitoring

Review

Review in 1 year

Triggers for non-scheduled review

For example:

- Material error in the underlying data.
- Significant additional data becomes available.
- Significant change in industry practice.
- Formal guidance from the regulator.



Institute  
and Faculty  
of Actuaries



Institute  
and Faculty  
of Actuaries

# Validation



# Role of validation and validation process

- Validation: required by Solvency II but wider applicability.
- Judgement is hard to validate, but it can be done.
- Key features of our proposed process aid validation:
  - Logical structure.
  - Clearly set out thought processes.
- Validation tools can be used for expert judgement.
- Consistency.
- Use of industry benchmarking...
- ...but take care with potential systemic risks.





Institute  
and Faculty  
of Actuaries

## Breakout session 2



# Questions for breakout session 2

7. In your experience, which approaches to expert judgement have you found most useful? And which approaches have you found problematic?
8. How should firms be encouraged to provide a true indication of the level of uncertainty around their solvency metrics arising from expert judgement?
9. Given the unique characteristics of each firm, should regulators have a preconceived view of what expert judgement they would expect to see before reviewing the firm?
10. How should regulators manage the balance between consistency of judgements across firms while avoiding the systemic / herd risk of everyone using similar judgements?
11. What would you see as the advantages and disadvantages of having a set of expert judgement principles that applied across all jurisdictions?
12. Assuming that such a set of principles were developed, what would you include?



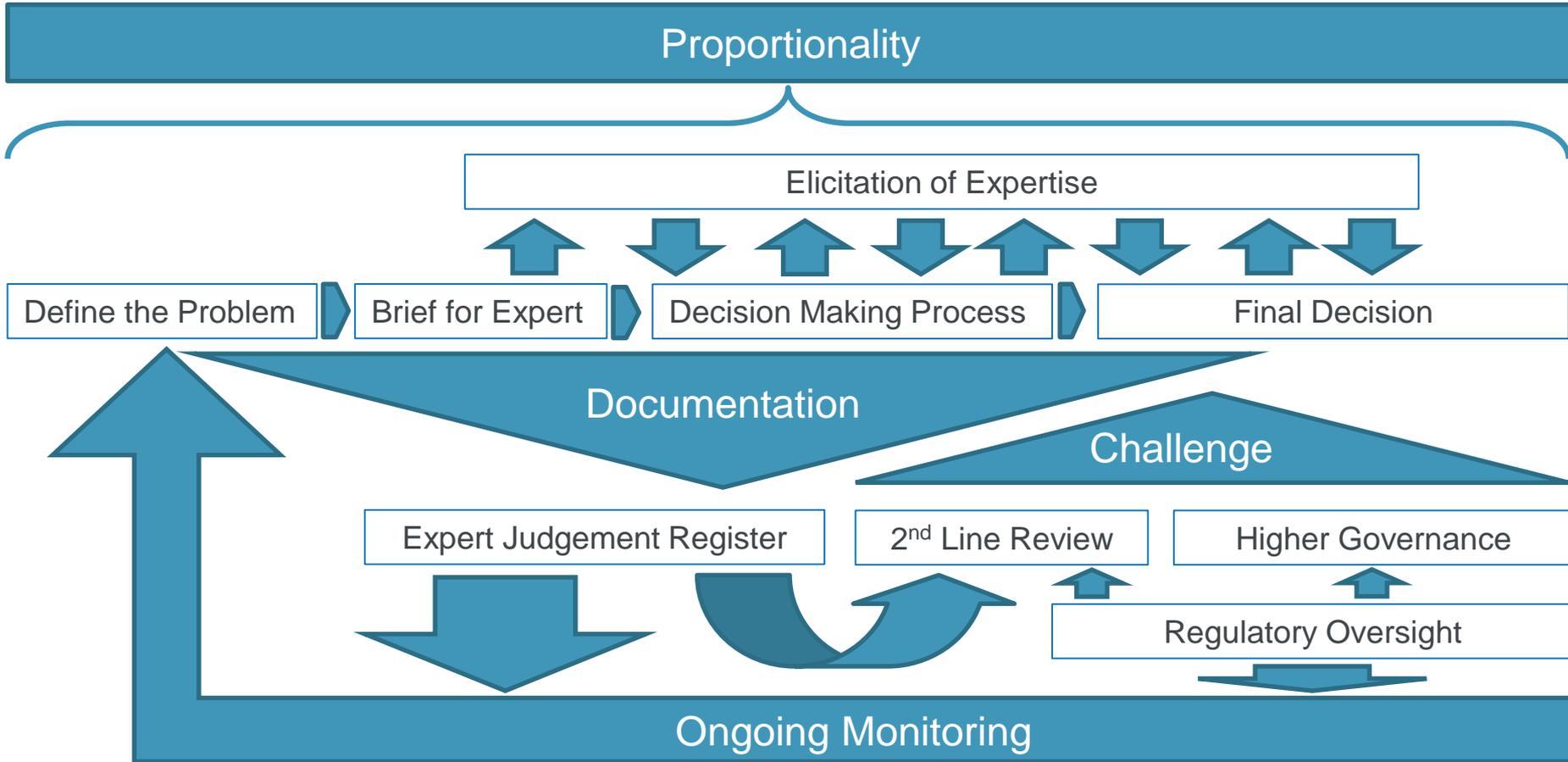


Institute  
and Faculty  
of Actuaries

## Recap of process and conclusions



# Process summary



# Conclusions

- Expert judgement is inherent in models.
- Recent regulatory changes have emphasised the need to have transparent, evidence-based judgements.
- Need a strong framework to ensure application is easy to manage.
- Need a robust and well-defined process that is tailored to the firm's needs.
- A proportionate approach which has regard to the materiality of the decision is critical.



# Questions

# Comments

The views expressed in this presentation are those of the presenter rather than necessarily being the views of the IFoA.

Paper: <https://www.actuaries.org.uk/documents/expert-judgement>.

Contact details: [roger.austin@aprllp.com](mailto:roger.austin@aprllp.com).



Institute  
and Faculty  
of Actuaries