

iNED FORUM – 2019 PROGRAMME

Sponsored by



2019 iNED FORUMS

Monday 1st April 2019



Welcome from Tim Carroll (Chairman: iNED Committee)

Addressing Uncertainty in Board Decision Making

Before we begin, I have some important news notices to share with you....

New iNED website launched

- **Fresh new look and easier navigation**
- **Additional functionality** e.g. archive of past iNED events with option to download slide presentations
- **Further enhancements planned**

Visit the new iNED website: www.wci-ined-information-bank.co.uk

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iNED Information Bank

The WCI's web-based resource for Non-Executive Directors

Updated each quarter – latest update to December 31, 2018

Future quarterly updates will be provided by **Grant Thornton**

[Visit the iNED Information Bank](#)

2019 iNED FORUMS

iNED
Insurance Non-Executive Directors



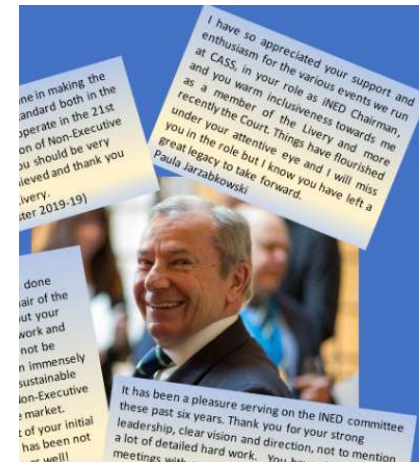
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New iNED presence on Social Media

- **Follow us on LinkedIn** (type iNED Forums in the LinkedIn search box)
- Content suggestions welcome
- **Please “like” us and “follow” us on Twitter and LinkedIn**

 [@insurerscompany](https://twitter.com/insurerscompany)

 [linkedin.com/showcase/ined-forum](https://www.linkedin.com/showcase/ined-forum)



2019 iNED FORUMS



Monday 1st April 2019

2019 iNED Forums & Workshops

- **Two further iNED 2019 Forums {Old Library, Lloyd's (Q1 to Q3) and Mazars (Q4)}:**

1. PRA & FCA: Regulatory Update – **3rd June**
2. Panel: The Direction of the Market in 2020 - November

- **Three iNED 2019 Workshops:**

1. EY: Market Results 2018 & other “hot topics” – **4th July**
2. Scenario-based NED training “Rapston IPO”: ICAEW training – 16th September
3. WTW Workshop: Topic TBA - October 2019

2019 iNED FORUMS

Monday 1st April 2019



Welcome from Tim Carroll (Chair: iNED Committee)

- **CII / PFS CPD Accreditation:**
- Delegates participating in today's accredited Worshipful Company of Insurers iNED event can claim up to **1.50 CPD hours** towards the CII or Personal Finance Society member CPD scheme.

2019 iNED FORUMS

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Membership of the WCI:

If any regular attendee would like to find out more about joining the WCI as a member ... initially as a Freeman of The Worshipful Company of Insurers ... please speak to me or any iNED Committee member afterwards or send an e-mail to:

forumsmanager@wci.org.uk

Your details will be passed to our Clerk who will send you a WCI membership pack.

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Today's speakers

Dr. Terry Masters



Current Master of the Worshipful Company of Insurers (2018-19)
Terry is Non-Executive Director of Faraday, Berkshire Hathaway's
Lloyd's Operation and Chairman of its Audit and Risk Committees.

Melinda Strudwick



Melinda is a qualified actuary and a Director working in PwC's
Risk Modelling Services practice with over 15 years' experience.
She is co-chair of the IFOA General Insurance Research
Organisation (GIRO) 'Managing Uncertainty' working party.

Paul Kaye:



Paul has oversight of the Actuarial practice at Aon within
Reinsurance in London. He has worked with a number of large
global insurance and reinsurance groups. Prior to joining
Benfield Greig in 2000, he worked for Commercial Union.

**IFOA : The Institute and Faculty of Actuaries*

Full bio's included in your delegate pack

Addressing Uncertainty in Board Decision Making

LEARNING OBJECTIVES:

By the end of this 1.5 hour session, delegates should be able to:

Key Learning Objectives:

- Recognise that the failure to face up to issues surrounding uncertainty is a threat to good decision making.
- Learn the Six high-level Uncertainty Principles for consideration in supporting, making, or critiquing decisions.
- Benefit from the Panel's explaining and understanding uncertainty for experts and decision makers.
- Benefit from Exploring Insurance related case studies, highlighting situations where there is a high level of 'unknowability'.

Format of this afternoon's session

- Introduction and background Terry Masters
- Uncertainty Principles Paul Kaye / Melinda Strudwick
- Case studies Melinda Strudwick / Terry Masters

Introduction

- Decisions made in Boards are often dependent on expert advice
- Expert advice often comes with caveats especially over uncertainty
- Boards and their advisors do not always face up to uncertainty

When considering a problem do you...?

- a) Focus on issues that are more certain
- b) Consider uncertainty but consciously set it to one side
- c) Attempt to quantify uncertainty
- d) Take a broad approach to uncertainty and consider how it might be managed in the context of the decision

IFoA Managing Uncertainty Working Party

- Originally 1 in 200 working party
- Reformed in 2013 with broader focus
 - By actuaries but for decision makers
 - Insurance experience and expertise, but application beyond insurance
- Over 25 contributors
 - Companies, Consultants, Brokers, Lloyds
- **Aim: better decision making in the face of uncertainty**



Institute
and Faculty
of Actuaries

Managing Uncertainty Paper

- Section 1: six principles for improved decision making
- Section 2: three case studies
 - Managing uncertainty after being catastrophically wrong
 - The dividend question
 - I disagree!



Institute
and Faculty
of Actuaries

Managing Uncertainty

Principles for improved decision making

by Members of the IFoA Working Party

Face up to uncertainty

Deconstruct the problem

Don't be fooled (un/intentional biases)

Models can be helpful, but also dangerous

Think about adaptability and resilience

Bring people with you

February 2019

Six principles for improved decision making in the face of uncertainty

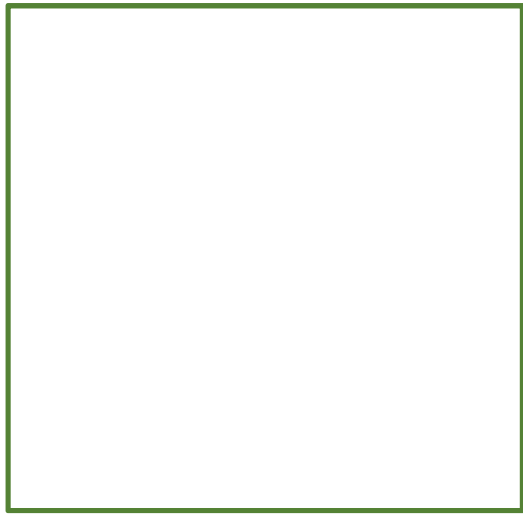
1. Face up to uncertainty
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Six principles for improved decision making in the face of uncertainty

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1. Face up to Uncertainty

Is the problem well defined?



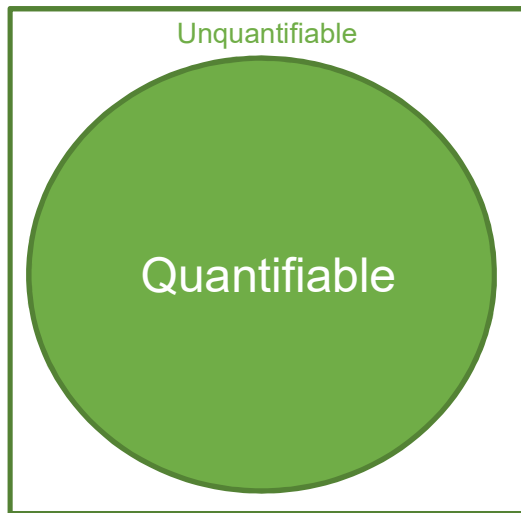
Clear context, objectives
and scope



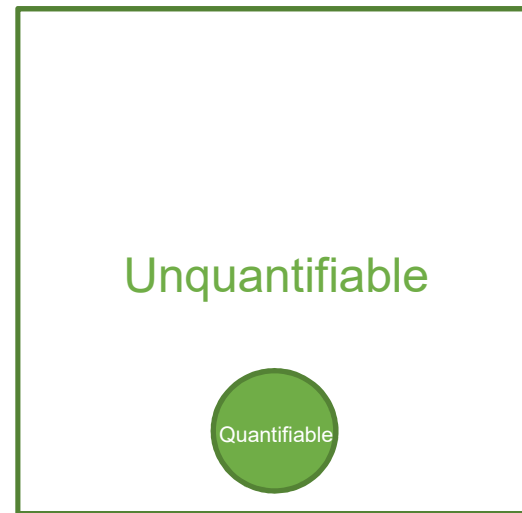
Inherently vague or poorly
explained / understood

1. Face up to Uncertainty

Some things are unknown and cannot be modelled

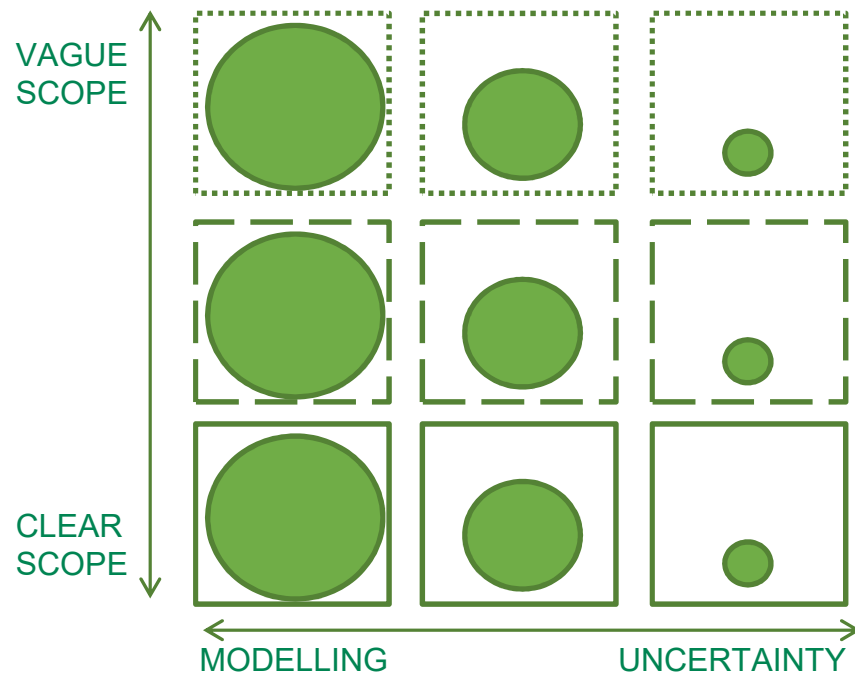


A modelling challenge



An uncertainty challenge

1. Face up to Uncertainty



How should typical insurance decisions be categorised?

Do decision makers and experts agree? And are they right?

A simplified framework but how do we face up to uncertainty?

1. Face up to Uncertainty

Why don't people face up to uncertainty?



- Our brains are pattern recognition machines. Our natural instinct is to apply memories and experience to predict what happens next
- Short term reward and/or personal risk are often not aligned to effective uncertainty management
- Uncertainty is messy and difficult: we don't know what to do ➡ **Uncertainty Principles**

Six principles for improved decision making in the face of uncertainty

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2. Deconstruct the problem

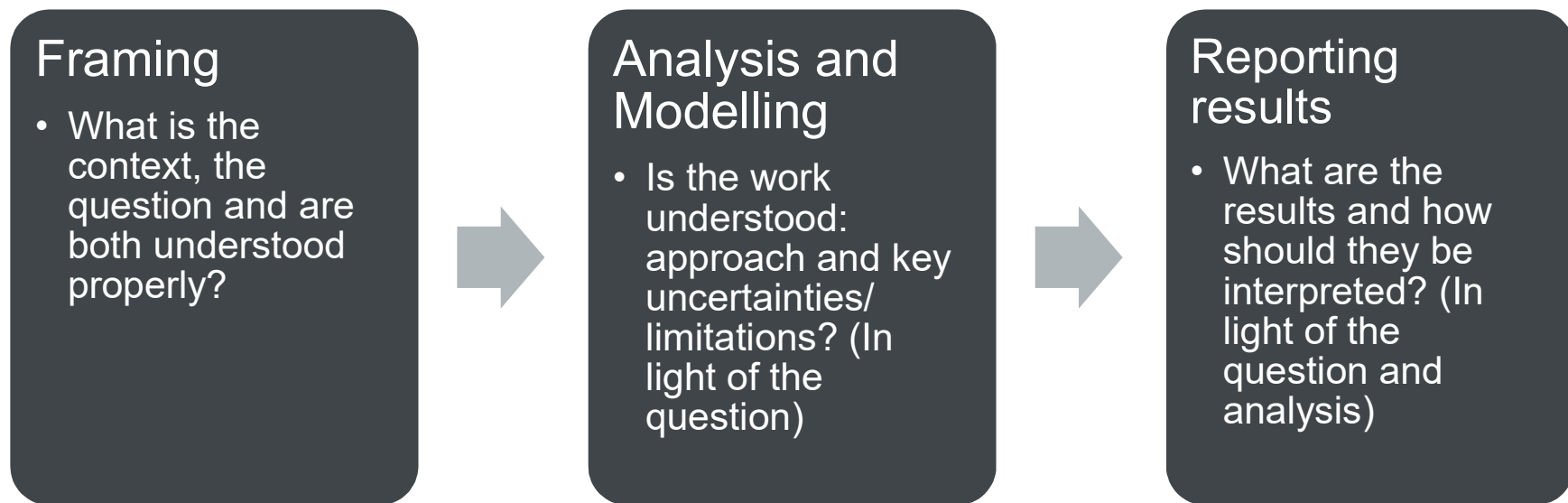
Breaking problems into parts is generally helpful
(so long as not at the expense of forgetting the whole)

Three specific deconstructions are discussed in the paper:

- The decision making process
- The decision stakeholders
- The assumptions (explicit and implicit) and the types of uncertainty

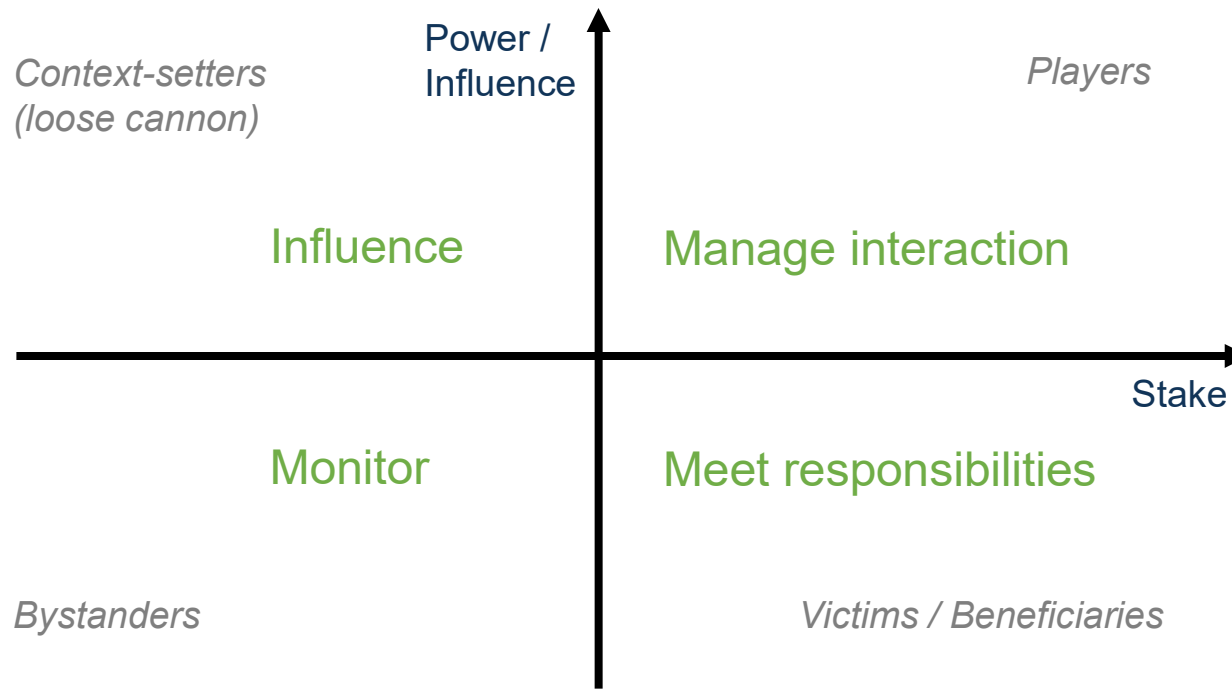
2. Deconstruct the problem

The decision making process



2. Deconstruct the problem

The decision stakeholders



2. Deconstruct the problem

Assumptions and types of uncertainty



STEP ONE: Assumptions

Consider **implicit** and **explicit** assumptions

- Where are we now?
- How are we going to get there?
- Where do we want to go?

Worked example: Buying a house

- Existing space adequacy, current location suitability, current house value (if applicable), current finances, career prospects
- Property availability, selling existing property, raising deposit and mortgage financing, research (reviewing areas, surveyor's report, costs and bills), financial analysis of costs and future finances, relationship management: estate agent, buyer(s), seller, parents?
- Perceived requirements (space, location criteria etc.), time constraints, future financial position, future flexibility?

2. Deconstruct the problem

Assumptions and types of uncertainty



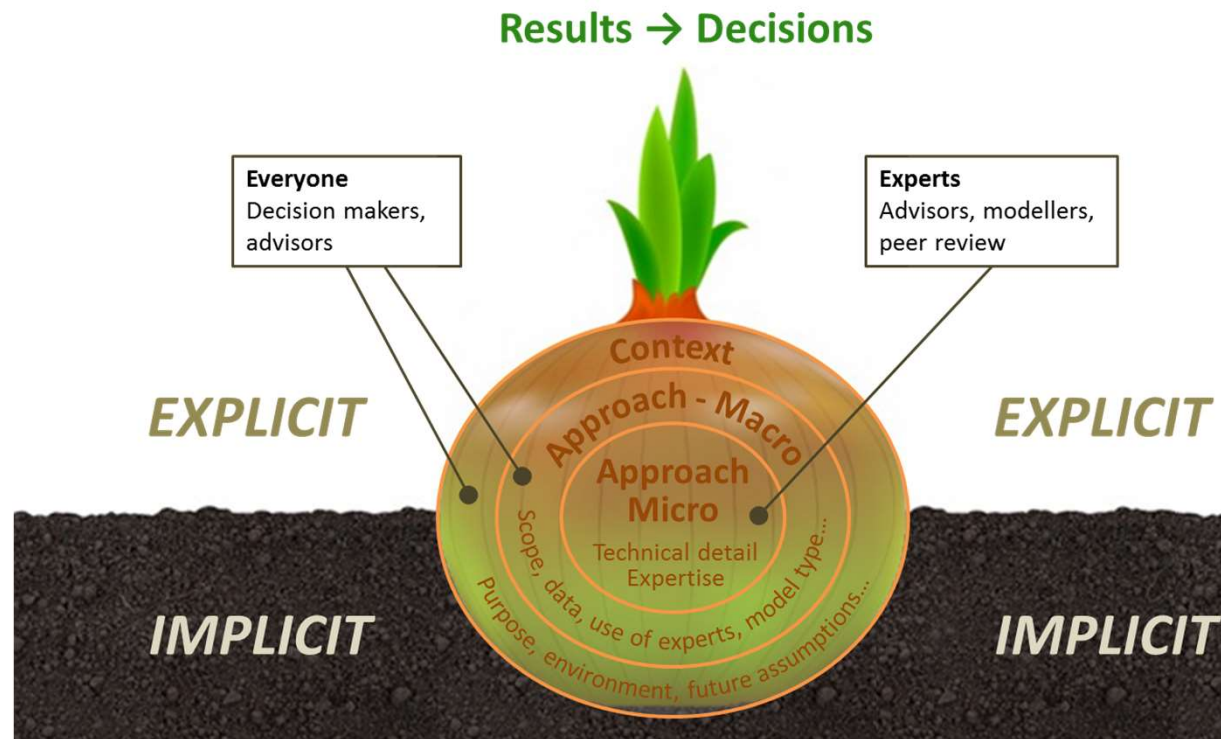
STEP TWO: Uncertainties

STEP ONE: Assumptions

- Limited knowledge due to unpredictability (stochastic variability)
- Limited knowledge due to ignorance (epistemic uncertainty)
- Modelling limitations
- Ambiguity
- Errors and other operational uncertainty
- People uncertainty
- Social and ethical uncertainty

2. Deconstruct the problem

The Assumptions and Uncertainty Onion



Six principles for improved decision making in the face of uncertainty

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3. Don't be fooled (un/intentional biases)

In situations where there is
a lot of **uncertainty**,
biases are **more powerful**

3. Don't be fooled

Two way communication: playing the game

- Real life negotiations are often characterised by:

Different information
and perspectives

Complex payoffs
or incentives

- It might not be optimal for either party immediately to disclose all facts to the other



3. Don't be fooled

Two way communication: playing the game

Example:

- What should the level of reserves be?

or

- What should the level of reserves be given currently set at £Xm and pressure on profits for results announcement?



3. Don't be fooled

Unintentional biases and traps

Useful to consider in three categories (deconstructing the problem):

Latent Framing	Traps	Over-interpretation
Biases and heuristics that influence the perception of a problem and expectations of the outcome	Biases and heuristics that can deceive the decision maker and advisor	Biases and heuristics (rules of thumb) relating to reading too much or too little into data

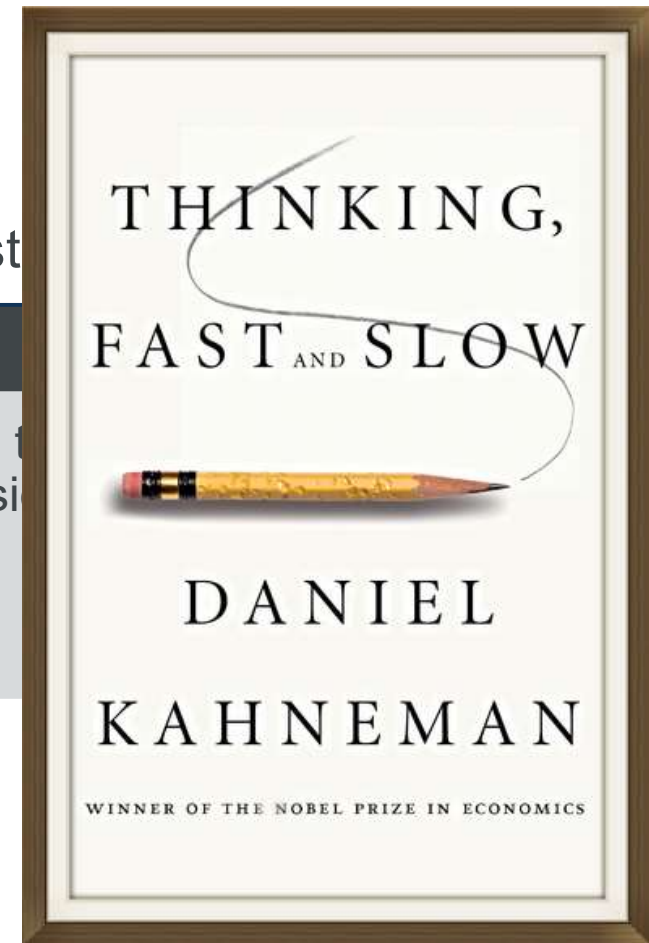
3. Don't be fooled

Unintentional biases and traps

Useful to consider in three categories (deconstruct)

Latent Framing	Traps
Biases and heuristics that influence the perception of a problem and expectations of the outcome	Biases and heuristics that can deceive the decision maker and advisor

The overarching technique for responding to unintentional biases and traps is to stimulate
Slow Thinking (Thinking Fast and Slow, Kahneman 2011)



3. Don't be fooled

Unintentional biases and traps

Latent Framing

- **Affect heuristic** the tendency for people to use their personal likes and dislikes to form beliefs about the world.
- **Anchoring** the process of using a starting point for evaluating or estimating unknown values.
- **Confirmation bias** tendency to seek evidence that is compatible with a given view.
- **Halo effect** the tendency to like (or dislike) everything about a person, including their opinions.
- **Myopic loss aversion** a phenomenon whereby investors are particularly concerned with the potential for a short term loss, even in the context of long-term investments.
- **Trusting intuition** the tendency for people to have a lot of confidence in their intuition.
- **Status quo bias** the preference for things to stay the same.
- **Sunk cost bias** costs incurred in the past are used as a justification to continue investing in suboptimal projects or strategies in the future.
- **Survivor's Curse** tendency for the lucky to survive and have misplaced optimism.

Traps

- **Gambler's fallacy** the tendency of decision makers to underestimate the probability of a repetition of an event that has just happened.
- **Illusion of validity** the use of evidence to make confident predictions even after the predictive value of the evidence has been disproved.
- **Law of Least Effort** the tendency for people to seek the easiest way possible to complete a task.
- **Mean-reversion bias** when decision makers assume that over time, a trend has to return to the mean.
- **Planning myopia** the tendency to consider consequences over a too restricted time horizon.
- **Priming** purposefully triggering thoughts or ideas.
- **Temporal discounting** the greater the delay to a future reward, the lower its present, subjective value.
- **Winner's Curse** tendency for winning bidders to overpay where incomplete information.

Over-interpretation

- **As if bias** the potential to be optimistic when restating historic behaviour due to exposure revisions or past misfortune.
- **Availability heuristic** the tendency for people to respond more strongly to risks when instances of those risks are more available to them (from memory, imagination, media, general social discourse, beliefs about the world).
- **Causal thinking bias** tendency for people to seek patterns and explanations rather than believe in chance.
- **Hindsight bias** the false belief that events are more predictable than they actually are.
- **Illusion of skill** the tendency for people to mistake good luck for skill.
- **Small probabilities** a group of biases that can arise when people reason about rare events. Small probabilities tend to receive too much, or too little weight depending on the decision context.

Six principles for improved decision making in the face of uncertainty

1. Face up to uncertainty
2. Deconstruct the problem
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4. Models can be helpful, but also dangerous
5. Think about adaptability and resilience
6. Bring people with you

4. Models can be helpful, but also dangerous

Prudence and estimation

Ten losses: 26, 29, 40, 48, 59, 60, 69, 98, 278, 293

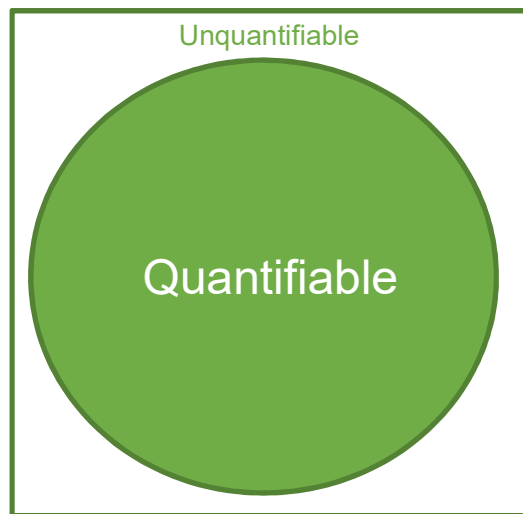
What is the 1 in 100 loss exceedence estimate?

Scenario	Information	1 in 100
GREEN	Losses from an exponential distribution with mean of 100	461
AMBER	Losses from an exponential distribution with unknown mean	Higher? True mean may be higher than 100
RED	No more information	Further concerns that true distribution may be different and also may change over time

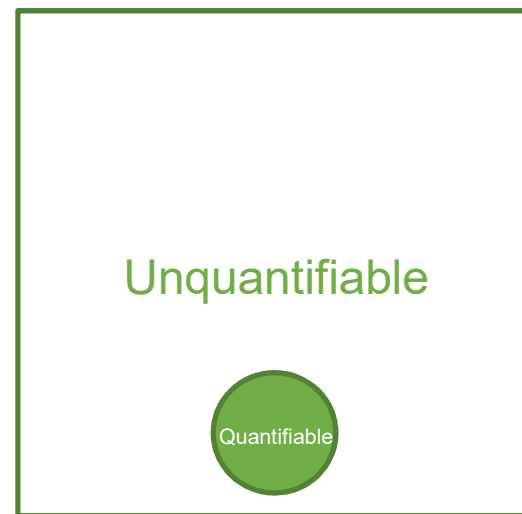
Extra uncertainty in the red and amber scenarios relates to a lack of knowledge, rather than inherent randomness. Can this be quantified?

4. Models can be helpful, but also dangerous

What is unquantifiable / unknowable?



A modelling challenge



An uncertainty challenge

4. Models can be helpful, but also dangerous

Make it simple?

High uncertainty
Many alternatives
Small amount of data

Low uncertainty
Few alternatives
High amount of data



Make it simple

Make it complex

From “Risk Savvy, How to Make Good Decisions” (Gerd Gigerenzer, 2015)

4. Models can be helpful, but also dangerous

The value of heuristics in uncertain situations

“Heuristics: any approach to problem solving, learning or discovery that employs a practical method not guaranteed to be optimal or perfect, but sufficient for the immediate goal” (Wikipedia)

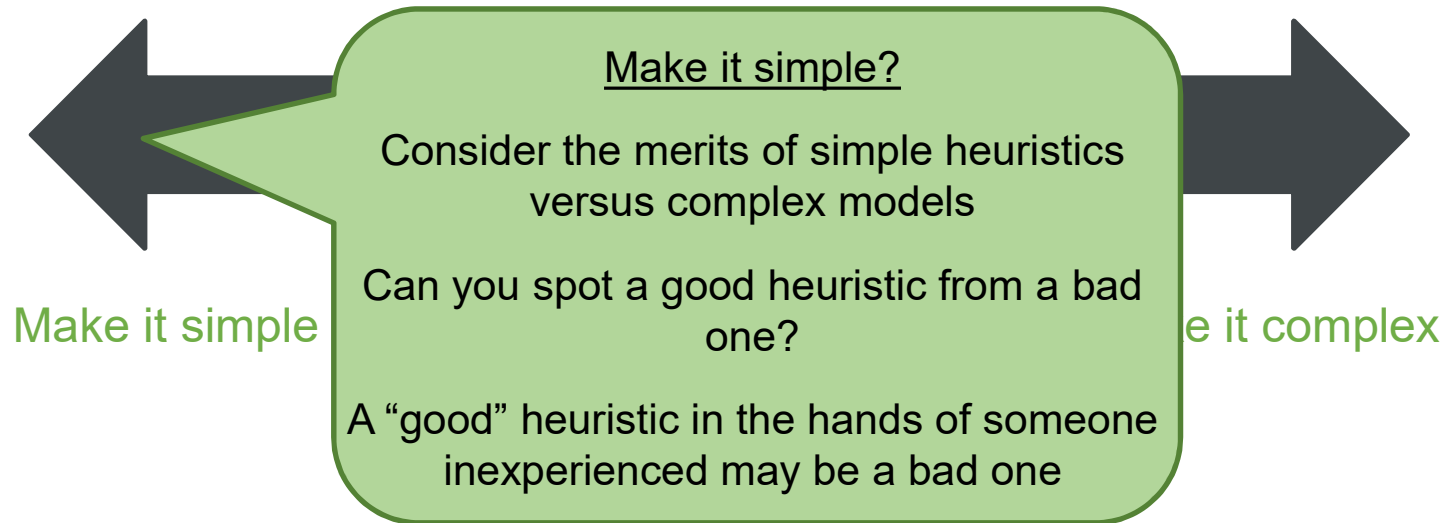


4. Models can be helpful, but also dangerous

Make it simple?

*High uncertainty
Many alternatives
Small amount of data*

*Low uncertainty
Few alternatives
High amount of data*



4. Models can be helpful, but also dangerous

What do different models forecast for impact on GDP, of leaving the EU, over the long-term?



Source: Institute for Government analysis

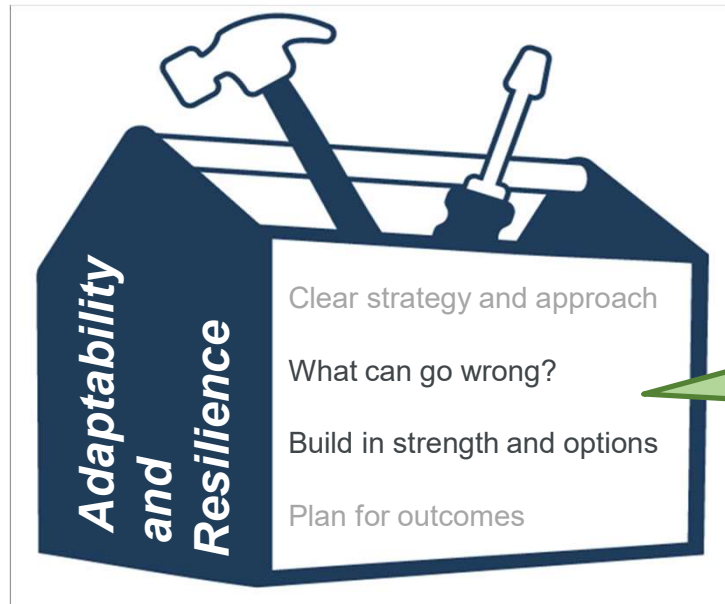
October 2018

Six principles for improved decision making in the face of uncertainty

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5. Think about adaptability and resilience

Build in preparedness and adaptability to deal with consequences if things don't turn out as hoped



Example:

- Scenarios (Shell)

5. Think about adaptability and resilience

Build in preparedness and adaptability to deal with consequences if things don't turn out as hoped



Examples:

- Boston Marathon
- “NotPetya” Cyber Attack

Six principles for improved decision making in the face of uncertainty

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6. Bring people with you

Face up to Uncertainty

and

Bring people with you

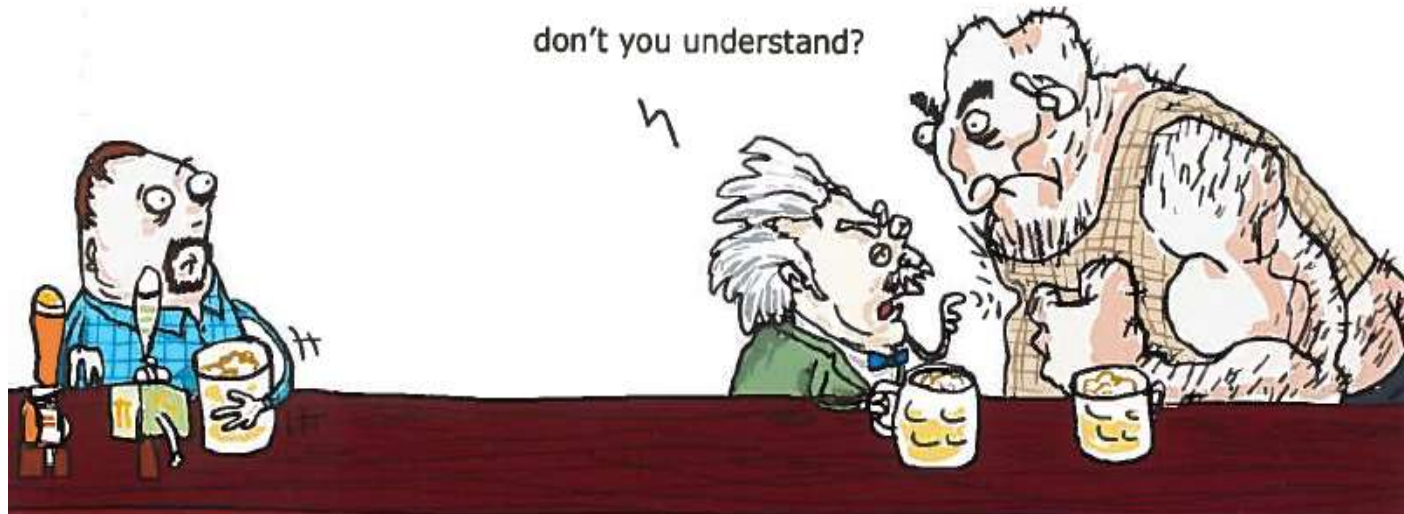
are the two most important principles

6. Bring people with you Trust and Communication

What part of

$$\begin{aligned}\dot{v}_i^{(1)} &= -4\frac{\hbar}{a}v_i^{(1)} - \frac{1}{2}k\pi_i^{(1)}, & E &= \frac{mc^2}{2} \\ \dot{v}_j^{(1)} &= \dot{V} - (1 - 3c_j^2)\frac{\hbar}{a}(v_j^{(1)} - V) - \frac{1}{2}k\frac{\omega_j}{1+\omega_j}\pi_j^{(1)},\end{aligned}$$

don't you understand?



6. Bring people with you

Trust and Communication

Building trust

- Stimulate engagement and encourage ownership
- Know the people not just the problem
- Technical and social understanding
- Trust comes with time...

Communication: what, when, how?

- Perspective of the audience?
- Highlight uncertainty, but favour scenarios, probabilities and facts over vagueness
- Unless the logic of the modelling is conveyed, people may discount its conclusions
- If people don't receive the information they need, they will guess

6. Bring people with you

The science of communication ...

Consider the **perspective of the audience** (experts, non-experts), listen to their needs and seek feedback

Familiarity of experts with the issues and model can impede ability to engage with those outside of your field

The more complex the modelling, the more you may confuse your audience, thus reducing their willingness to act

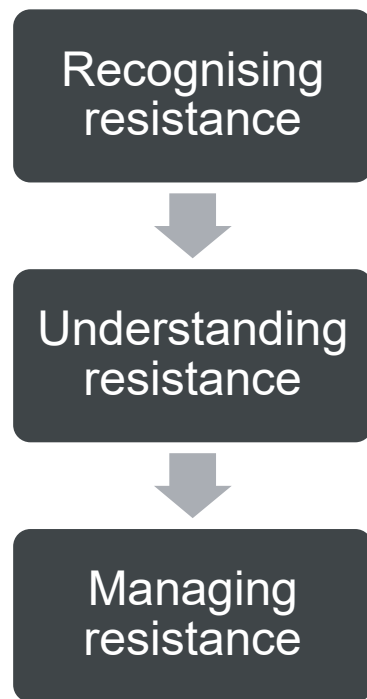
Unless the logic of the modelling is conveyed, people may discount its conclusions – a **'mental map' of the model can help**

As the expert, it's tough to admit your model isn't perfect - highlight the uncertainty and key sensitivities but favour scenarios, facts and figures over vagueness

Behavioural research shows lay people extract the info they need from **clear numeric expressions of uncertainty**, but struggle with qualifiers like “unlikely” and “probable”

6. Bring people with you

Resistance



Resistance* is a predictable, natural and necessary part of the learning process

We need to:

- Identify when it is taking place
- Support the stakeholder in expressing the resistance directly
- Not take it personally or as an attack on you or your competence

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Case Studies

What Should You Do?

Case Studies

1. The Dividend Question
2. Catastrophically Wrong

Aim: these case studies will illustrate how the uncertainty principles apply in different scenarios.

The principles are not, however, applied as a step-by-step instructions, as will be seen in the following examples.

The Dividend Question

Case Study – The Dividend Question

Background

- You are a NED for a general insurer.
- The Capital Actuary has recently presented her findings to the Board, on the basis of which the Board is considering releasing capital to boost dividends paid to shareholders.
- You are aware that last year was a tough year for the company in terms of losses and that this likely impacted the capital position.

Case Study – The Dividend Question

Deconstruct the problem / Face up to uncertainty / Bring people with you

- Why has the Capital Actuary's view of the capital requirement changed? Is this due to:
 - A change in the company's risk profile?
 - Changes to the capital model?
 - Pressure from other areas within the business?
- What risks and uncertainties does the capital model actually capture?
 - How well is it able to quantify the different risks?
 - Are there unquantifiable risks or highly uncertain risks that the Board should consider qualitatively?
- How well does the Board understand the uncertainty in the capital model results?

*Deconstruct
the problem*

*Face up to
uncertainty*

*Bring people
with you*

Case Study – The Dividend Question

Models can be helpful, but also dangerous / Don't be fooled

On investigation it is discovered that the capital requirement has fallen due to a re-parameterisation of the capital model.

- What changes have been made to the model?
 - Are the underlying assumptions now set on a more optimistic basis?
 - What about inputs into the model from other parts of the business, e.g. the business plan? Have these also been prepared on an optimistic basis and so the optimism is being compounded?
- What has driven the change in the model parameters?
 - Has the Capital Actuary been asked to find 'fat' in the capital to help maintain historical shareholder dividend levels?
 - What are the key judgements / decisions and can the actuary articulate why they have been made?
 - Were any other experts involved in the key decision making? If so, were there any significant differences in view on key issues?

*Models can
be helpful,
but also
dangerous*

*Don't be
fooled*

Case Study – The Dividend Question

Think about adaptability and resilience / Bring people with you

It becomes clear that the changes to the capital model were in response to a request from the CFO to help find ways to maintain the level of dividends the market has come to expect.

- What would be the impact on the business of underestimating the capital requirement? Has the Board considered contingencies?
- Given the goal is maintaining dividend expectations, what alternative solutions might achieve this?
 - Issuing subordinated debt
 - Purchasing reinsurance to lower the capital requirement
- Consider the uncertainties inherent in these alternatives.

*Think about
adaptability
and resilience*

*Face up to
uncertainty*

Catastrophically Wrong

Case Study - Catastrophically Wrong

Background (1/2) – company strategy

- ModelRe is a general insurer. The company strategy is to use catastrophe models to build a portfolio that maximises profit compared to risk.
- This strategy led to a disproportionate market share in Puerto Rico, leading to material exposure to the 2017 catastrophe - Hurricane Maria.
- In 2017 ModelRe's available capital was above the regulatory requirement, but following Maria the available capital has dropped to the 2017 requirement.
- The actual losses from Maria are likely to be greater than the modelled losses (total loss estimated to be between 1 in 250 to 1 in 10,000 scenarios).
- A loss of this size would fail the catastrophe model validation back test threshold, although the exact reason(s) why the model would fail are unknown.

Case Study - Catastrophically Wrong

Background (2/2) – risk appetite

- ModelRe is currently utilising 95% of its catastrophe risk appetite.
- The losses from Maria were generated by a single MGA, StampDown, representing 10% of ModelRe's premium. The business renews on 01-Jan.
- To protect against catastrophes, ModelRe purchases a single catastrophe reinsurance programme which renews on 01-Apr.
- Under normal circumstances, reinsurance market premium rates are assumed to increase by 20% per annum. ModelRe's broker suggests 50-100% on top of this for the 2017 catastrophe experience.
- Without the reinsurance programme the net risk would double.

Case Study - Catastrophically Wrong

The question

- The original 2018 business plan proposed:
 - Unchanged catastrophe exposure; and
 - An assumed reinsurance premium rate increase of 50%
- In light of the 2017 loss experience the Board now faces a key question:

Should ModelRe renew the StampDown business?

Case Study - Catastrophically Wrong

Should ModelRe renew the StampDown business?

- What are the key areas of uncertainty when deciding whether or not to renew the StampDown business?
 1. The catastrophe model uncertainty
 2. The reinsurance premium rate change uncertainty
- Model uncertainty
 - Do we need a new model?
 - Is the model OK but the parameters need to be reset?
 - Are there new uncertainties which make modelling difficult?
 - Is the model fine and this was just bad luck?
- Business rate change uncertainty
 - It is important to consider both, the rates ModelRe can achieve on the gross business written as well as the premium rates it must pay for the reinsurance.

*Face up to
uncertainty*

*Deconstruct the
problem*

Case Study - Catastrophically Wrong

Should ModelRe renew the StampDown business?

- Many stakeholders (particularly the MGA, StampDown) would like to see underwriting continue. Their interests could lead to the risk that:
 - Reports of gross losses are presented in a positive light.
 - The gross and reinsurance rate change assumptions are over-optimistic.
- To prevent this bias from influencing the decision-making the Board should:
 - Look at historical catastrophe losses to understand how loss estimates moved from initial reports and how premium rates changed post the event.
 - Ensure formal discussion of the profitability of different gross and reinsurance rate change scenarios.

*Don't be
fooled
(un/intentional
bias)*

Case Study - Catastrophically Wrong

Should ModelRe renew the StampDown business?

- The model can still be used to communicate risk but the model fail must be clearly communicated to all stakeholders.
- There is material uncertainty at the point of the StampDown renewal (01-Jan). To address this ModelRe could:
 - Extend the StampDown renewal to on or after the reinsurance renewal so that the rate change can be known with certainty
 - Reduce StampDown's risk appetite authority to 50% and then increase as the uncertainty reduces
- Given the materiality of this decision the Board should consult with the regulator, the reinsurer and the NEDs.

Models can be useful, but also dangerous

Think about adaptability and resilience

Bring people with you

Six principles for improved decision making in the face of uncertainty

1. **Face up to uncertainty**
2. Deconstruct the problem
3. Don't be fooled (un/intentional biases)
4. Models can be helpful, but also dangerous
5. Think about adaptability and resilience
6. **Bring people with you**

Managing Uncertainty Working Party 2013-2019

- Girinker Aggarwal
- Christian Bird (co-chair)
 - Andrew Cox
 - Tom Durkin
- Paul Kaye (co-chair)
 - Alex Marcuson
 - Henry Johnson
 - James Turner
- Terry Masters
- Natasha Regan
- Santiago Restrepo
- Nylesh Shah
- Andrew Smith (co-chair)
 - Richard Stock
 - Neil Hilary
 - Simon Margetts
- Melinda Strudwick (co-chair)
 - James Toller
- Martin White (co-chair)
 - Stuart White
 - Robin Wilkinson
 - Joseph Lo
 - Tony Jordan
 - Richard Winter

Addressing Uncertainty in Board Decision Making

Q&A:

- We now turn to our Q&A session with our roving microphones.
- Share your views - agree or disagree with the panelists – ask a question
- Please identify yourself ... tell us your name and your company.

Addressing Uncertainty in Board Decision Making

Recap: Lessons learned from this afternoon's three presenters during the 1.5 hour iNED Forum:

In the context of being a NED, you will now be able to:

- Recognise that the failure to face up to issues surrounding uncertainty is a threat to good decision making.
- Learn the Six high-level Uncertainty Principles for consideration in supporting, making, or critiquing decisions.
- Benefit from the Panel's explaining and understanding uncertainty for experts and decision makers.
- Benefit from Exploring Insurance related case studies, highlighting situations where there is a high level of 'unknowability'.

Addressing Uncertainty in Board Decision Making

FEEDBACK:

- Our standard feedback form will be sent to you by e-mail.
- It will record your score and views in a user-friendly sequence.
- Please complete it, as we always value your opinions and suggestions.

Addressing Uncertainty in Board Decision Making

THANK YOU:

- To today's speakers: **Terry Masters, Melinda Strudwick and Paul Kaye**
- To today's **technical** and **administrative assistants** from WCI and Lloyd's
- To **Lloyd's** for allowing us the use of the Old Library
- To **you** for attending and for your participation.

Please join us outside on the "History Floor" ... **networking**

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