

IfoA Managing Uncertainty Working Party

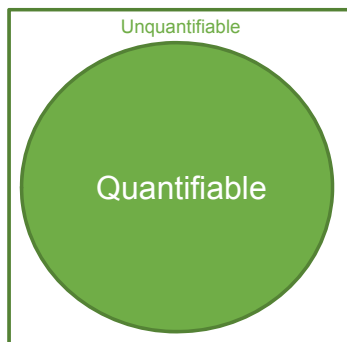


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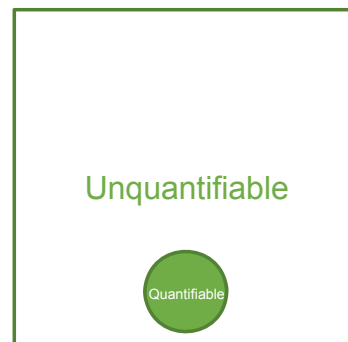
- Decisions made in Boards are often dependent on expert advice
- Expert advice often comes with caveats especially over uncertainty
- Boards and their advisors do not always face up to uncertainty

Aim of MWUP: better decision making in the face of uncertainty

Some things are unknown and cannot be modelled



A modelling challenge



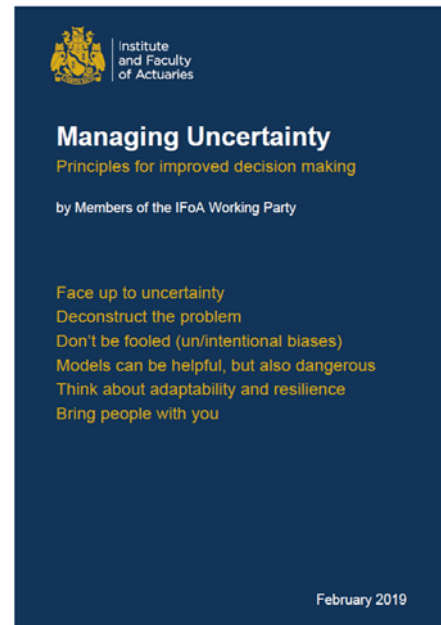
An uncertainty challenge

Managing Uncertainty Paper

- Section 1: six principles for improved decision making
- Section 2: three case studies

We presented this paper to:

- GIRO (Sep 2018)
- IFoA sessional (Feb 2019)
- WCI iNED forum (Apr 2019)



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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

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Why don't people face up to uncertainty?



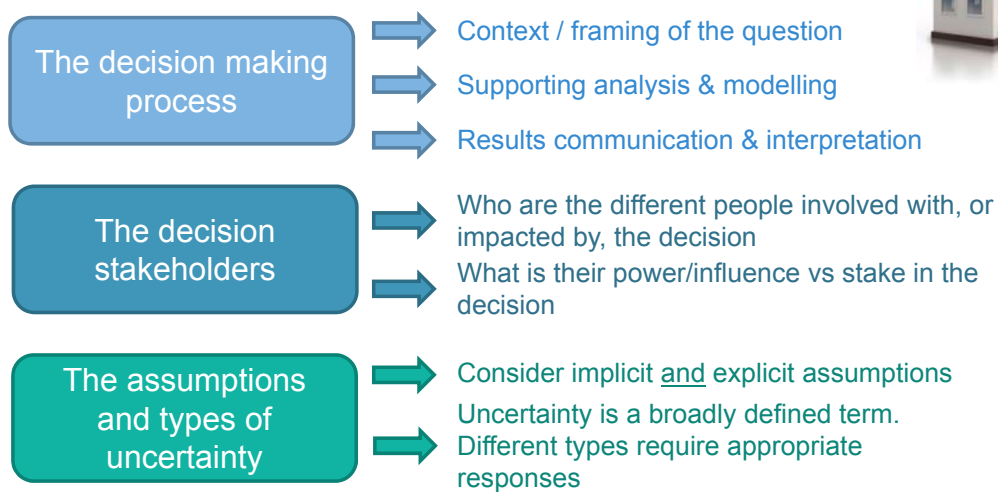
- Our brains are pattern recognition machines. Our natural instinct is to apply memories and experience to predict what happens next
- Short term reward and/or personal risk are often not aligned to effective uncertainty management
- Uncertainty is messy and difficult: we don't know what to do → **Uncertainty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

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2. Deconstruct the problem

The decision making process



Example Blip or trend?



A reserving actuary has seen a spike in claims in a particular quarter. How do they convey to the Reserve Committee that it is a trend, not a blip?

- Current financial pressures may colour management's views and perspectives
- Ideally the uncertainty in reserve estimates should have been addressed in times of stability, not just times of turbulence
- If this is the first time the Committee is exposed to the issue, and possible responses, it is too late ...

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3. Don't be fooled

Two way communication: playing the game

- Biases become powerful where there is uncertainty
- 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

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Example

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



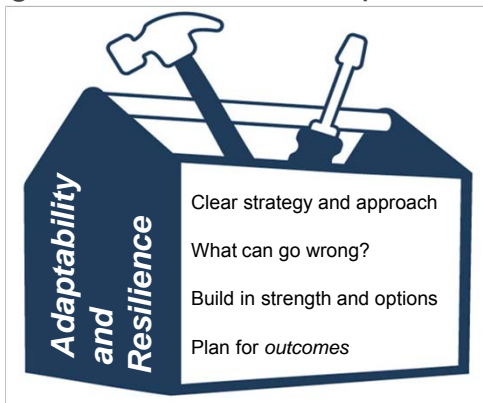
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5. Think about adaptability and resilience

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



Example

- Catastrophically wrong**
(case study A)
- Cyber Risk - "NotPetya"** (2017)
- Disaster Response**
Boston Marathon (2013)

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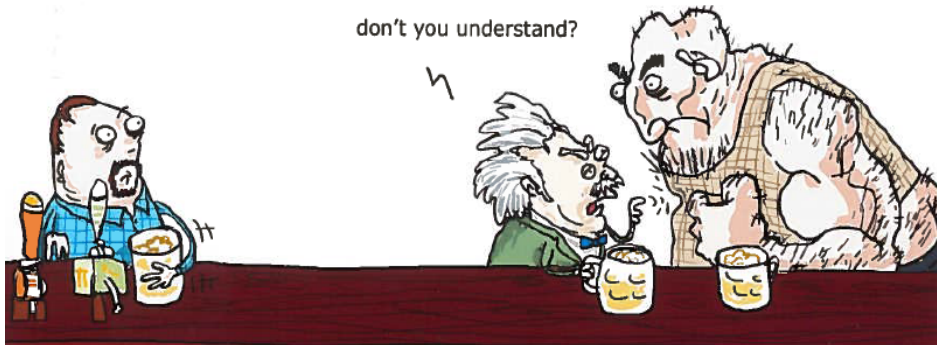
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6. Bring people with you Trust and Communication

What part of

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

don't you understand?



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Managing Uncertainty Working Party 2013-2019

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