



Next Step



Being Certain about Uncertainty, Part 2

- Can We See Extreme Cost Growth Coming?





Bibliography (1 of 2)

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Bibliography (2 of 2)





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Backup



**Engineering
Cost
Office**



Another Question

**If unknown unknowns are truly unknown,
then how can I credibly bound my cost
risk analysis?**

- **Ancillary Questions:**

- If we can't credibly address "unknown unknowns" then how can we credibly address "I forgot's?"
- If we really don't know what we don't know or what we forgot, then how can we even begin to estimate the magnitude?
- Is applying a fixed reserved (i.e. 30%) to an estimate anything more than a safety factor based on historical experience?
- Is there anyway to keep this train of thought from leading us into an ***inability to do cost estimating death spiral?***



Choose Your Weapon!



- **Inputs-Based Methods**
 - Cost Model Input Uncertainty
 - Estimating Method Uncertainty
 - Discrete Project Risks
- **Outputs-Based Methods**
 - Multiple Model
 - Same Model, Multiple Inputs
 - Historical Cost Growth
 - Discrete Project Risks
- **Scenario Based Methods (SBM)**
 - Non-statistical SBM
 - Statistical SBM
 - Enhanced SBM (eSBM)



Explaining

- **Understand Your Analysis**

- You should be able to **support all actions** on the basis of facts, data, analysis, sunspots, Ouija Boards, etc.
- Test yourself: explain it to a co-worker, your boss, your dog (cats won't listen) – don't try to it explain to family members!

- **Develop Your Explanation**

- Remember: you will be talking to managers and senior government officials, so **keep it simple**
- *Avoid deep discussions of probability theory and statistics*
- Explain the difference between **uncertainty** and **risk**
- Show the relationship between facts, data, analysis, and subjective assessments
- People understand stories, so use the **Narrative Fallacy** to your advantage

**Goal is for Your Cost Risk Analysis to be a
Logical Outcome of the Evidence**



Common Mistakes

- **Constructing the Narrative before doing the Analysis**
- **Using Triangular (and other Truncated) Distributions**
- **Relying on Experts**
- **Inadequately Addressing Estimating Uncertainty**
- **Ignoring or Minimizing History**
- **Failing to Acknowledge the Possibility of Extreme Cost Grow**