



# Meeting the Challenge of Project Predictability

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# *What Are We Thinking About Risk?*

- **How many of you are:**
  - Owners?
  - E&C Contractors or Suppliers?
  - Developers?
  - Lenders?
  - Academics?

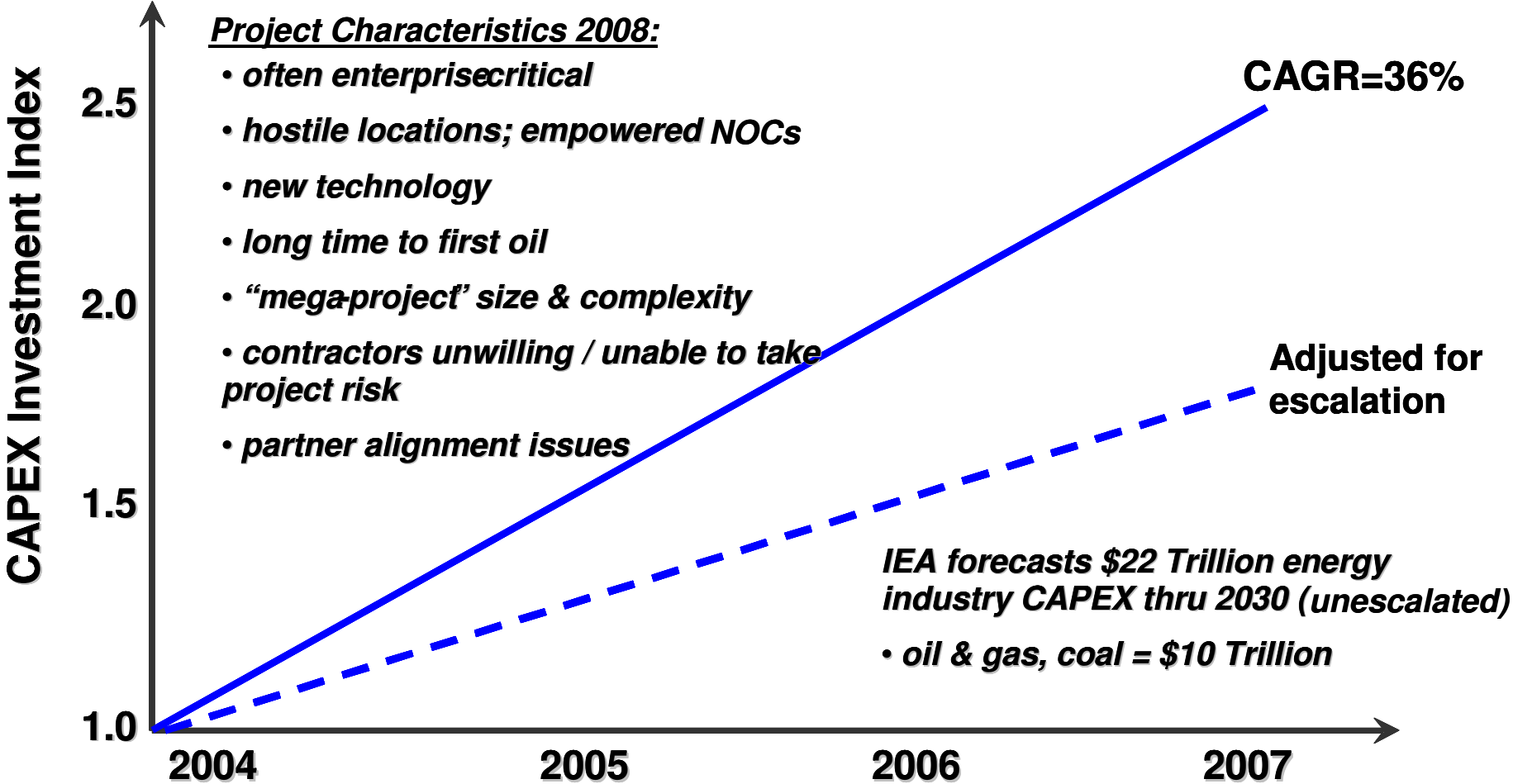
# *What Are We Thinking About Risk?*

***OWNERS: Has your view of project risks changed in the past 3 years? How? What are you doing about it?***

***CONTRACTORS: Has your willingness to take risks changed in the past 3 years? Why? What are you doing about it?***

***Developers – Lenders – Academics: Comments?***

# Current Conditions Unlikely to Change



# Examples of CAPEX Volatility

- Upstream
  - Kashagan (offshore production - Caspian) \$10G -> \$19G
  - Sakhalin II \$10G - > \$22G
- Midstream
  - Long Lake (SAG-D oil sands - Alberta) \$3.4G -> \$6.1G
  - Snovhit LNG (Norway) \$2G -> \$8.8G
- Downstream
  - Pearl (GTL – Qatar) \$5G -> \$20G
  - Syncrude Upgrader Expansion: \$4.1G -> \$8.4G

*These major increases in cost and time to first production were announced long after sanction.*

# Management is NOT Amused

- **Poor project performance is not acceptable when capital markets are looking for predictability & strong returns**
- **>50% of execs are dissatisfied with project performance (eg 40% of projects overrun) – more-so than ever**
- **... cannot afford to miscalculate capital project risks – yet do not have a good grasp of how to manage (them)**

*Source: Capital Project Execution in the Oil & Gas Industry – Booz Allen Hamilton*

THE  
BLACK SWAN



*The Impact of the  
Highly Improbable*

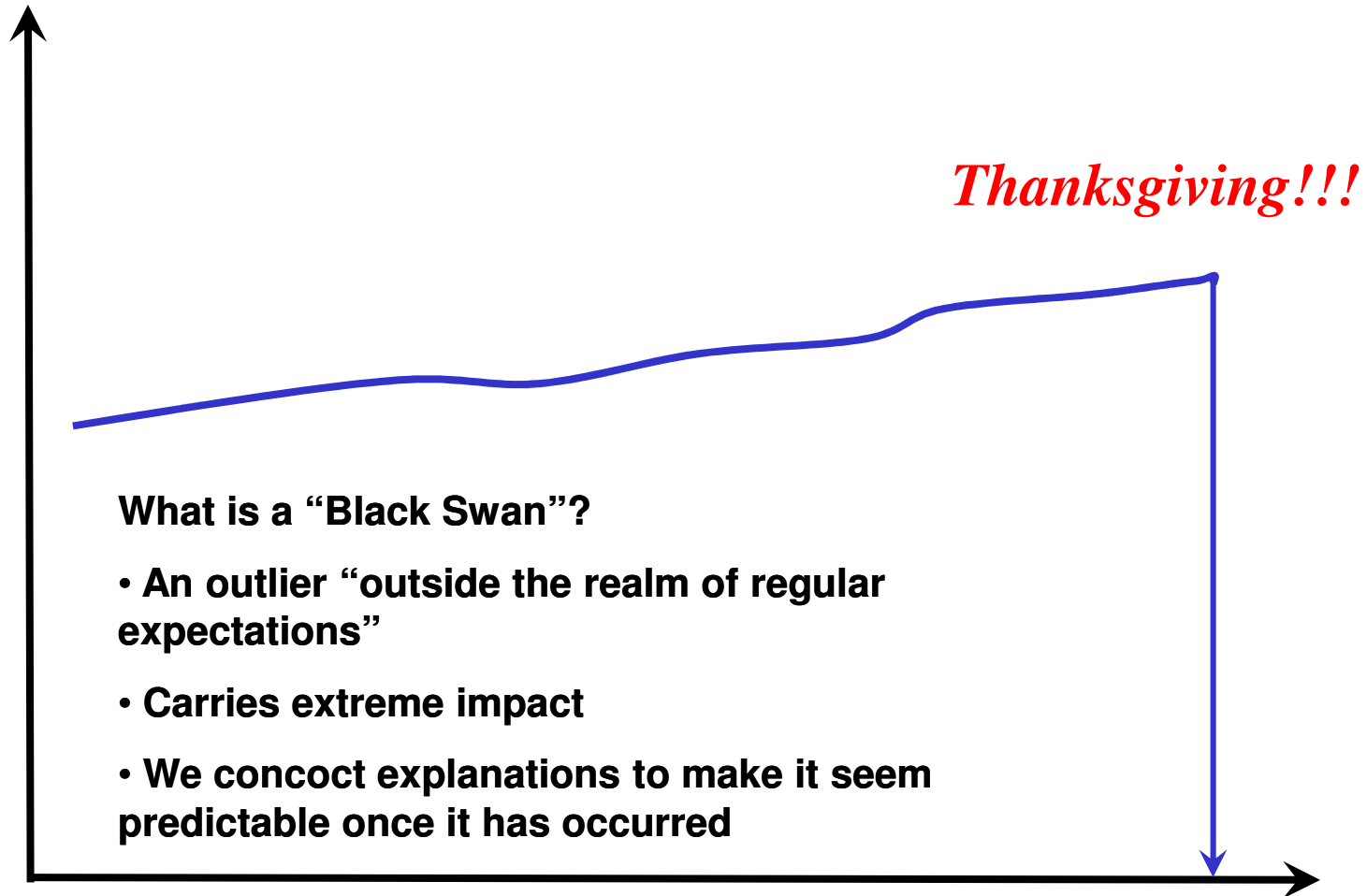
Nassim Nicholas Taleb

# HUNTING BLACK SWANS

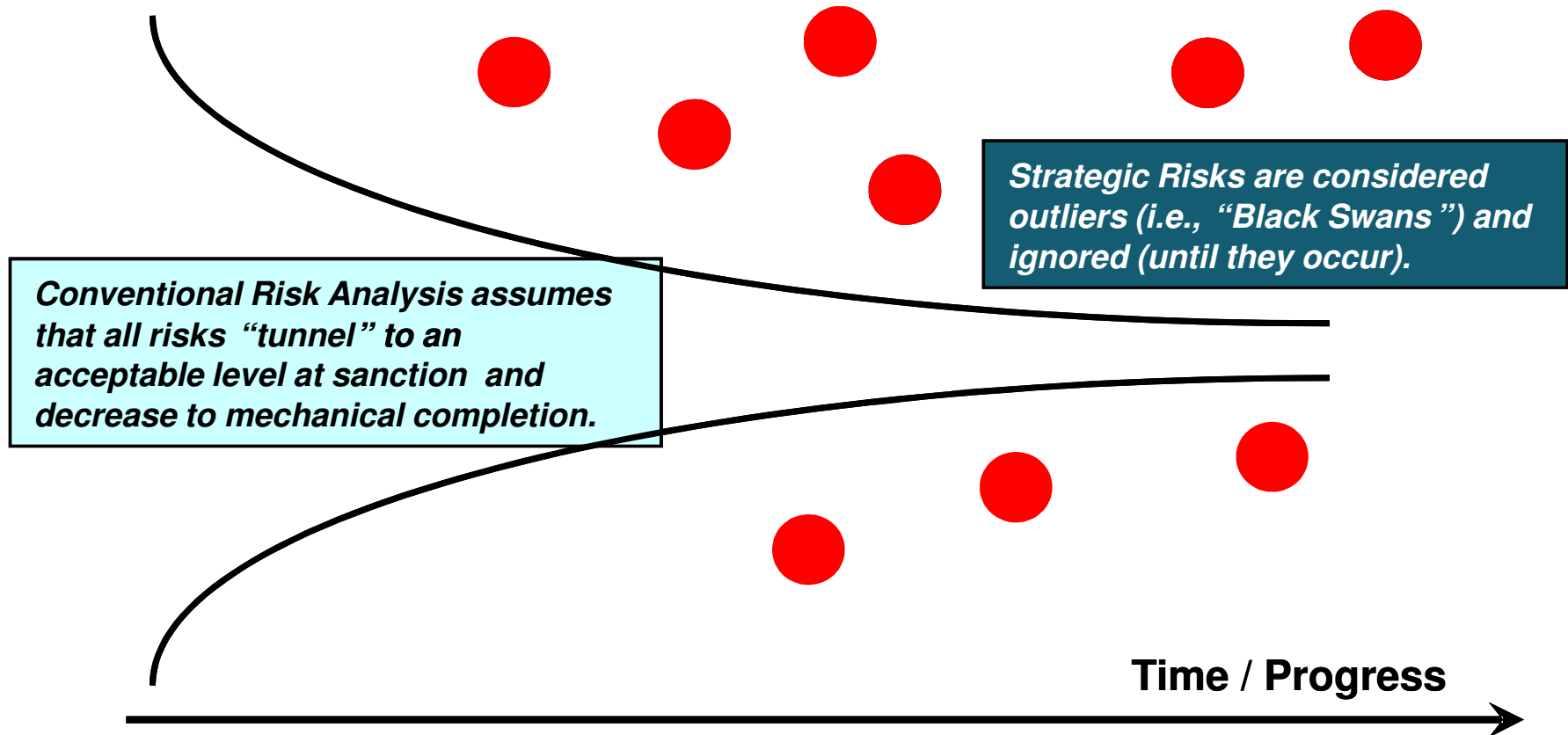




# Are We Thinking Like Turkeys?



# Conventional Approach Ignores Outliers



# Consider Kashagan (per WSJ 8/28/07)

- Shell operator for Exploration – logistics challenges etc.
  - 2001: Eni=operator, 1<sup>st</sup> Oil 2005 – lack of benchmarks for estimating
  - issue of artificial islands delays project
  - 2004: new plan approved, 1<sup>st</sup> Oil 2008, \$10G
  - 2007: update: 1<sup>st</sup> Oil end 2010, \$19G (Life \$57G->\$136G)
    - LQ too close to treatment plant, weak \$, lack of benchmarks, inflation
    - Cost of drilling rigs, “soaring steel prices”, lack of engineers, PMs
    - Kashagan: deny permits, project on hold, fire Eni
- 

## RISK FACTORS:

- Reservoir: H<sub>2</sub>S, pressure (“costly stress-resistant pipes”)
- Location: Caspian freezes 5 mo./yr. (“rig-wrecking ice-packs”), cold winter, logistics, 10’WD
- No export pipeline
- Environmental: beluga, sturgeon, seals (no spills!) – permitting issues
- Partners: strong, misaligned, dysfunctional
- Kazakh government new at this ...

# *What Do You Think?*

- **Were these really Black Swan risks?**
  - Could they have been predicted?
  - If so, why weren't they?
- **If you were the Kazakhs, would you fire Eni? If so, why? If not, why not?**

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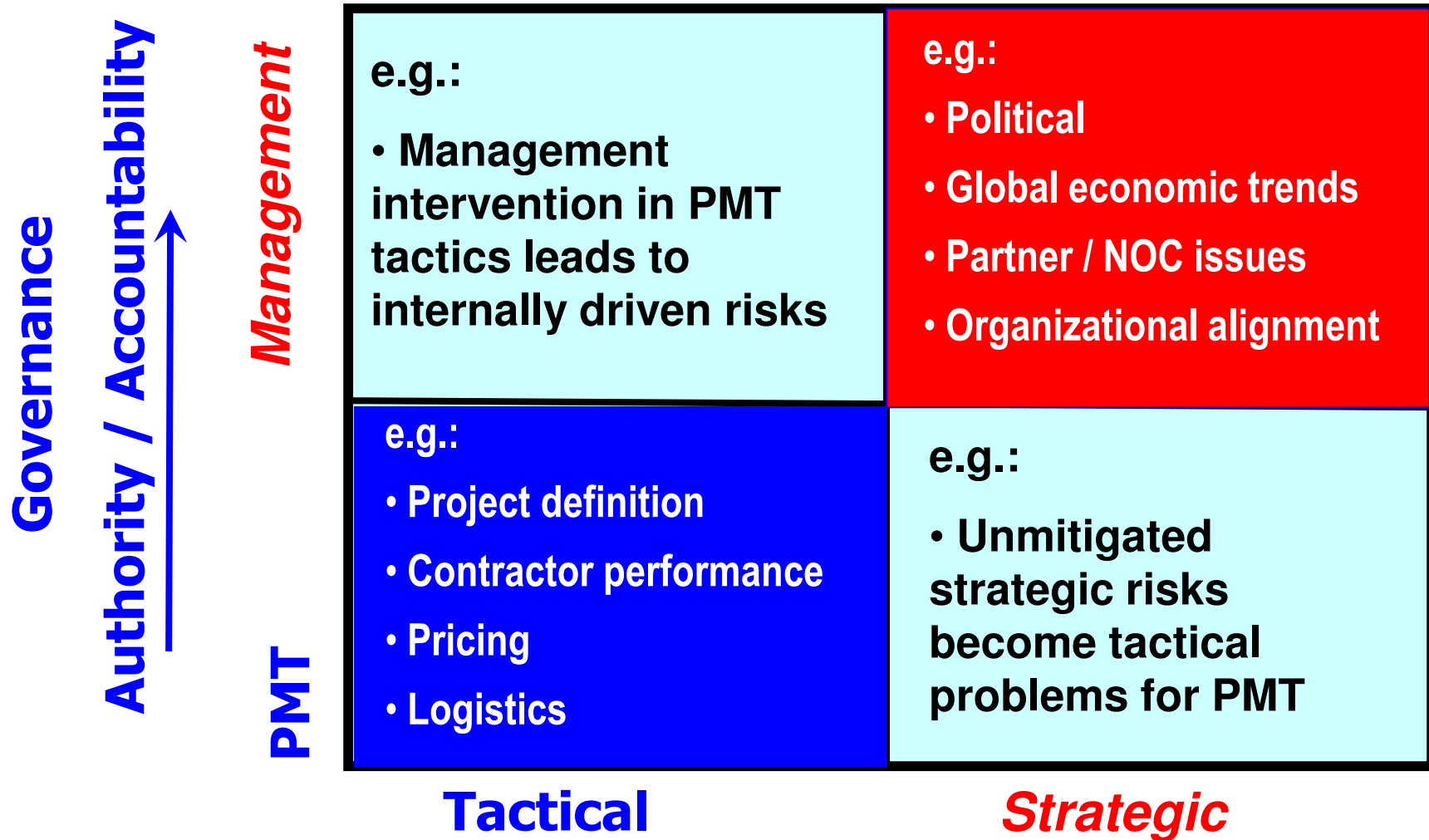
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- **Kazakh government new at this ...**

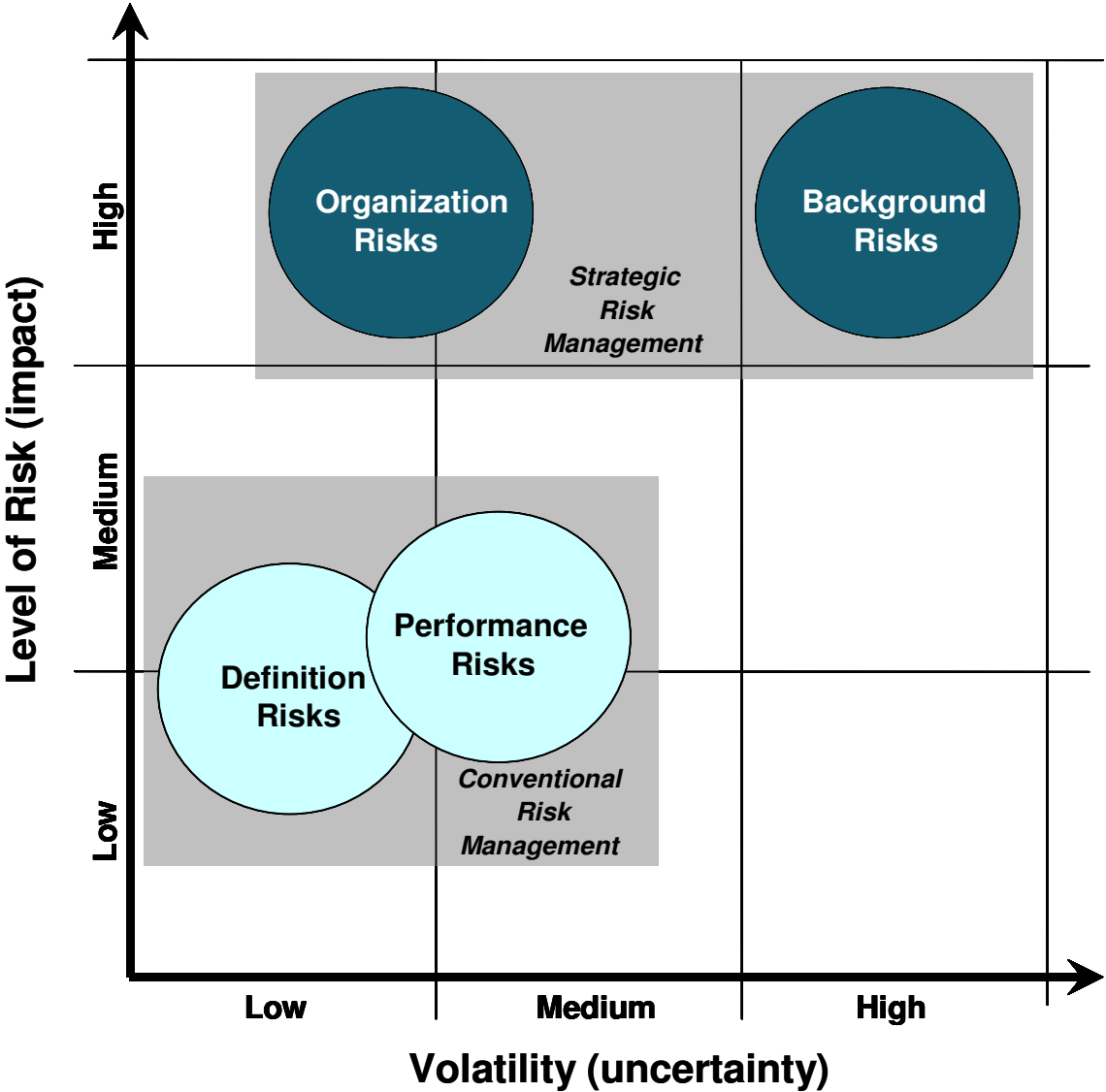
## *Consider Your Projects ....*

- **What are some examples of Black Swans?**
  - What was the project?
  - What risk was experienced and what was the impact?
  - Could it have been predicted at the start?
  - If so, why wasn't it?
  - What is the lesson learned?
- **Is “delusion necessary for projects to proceed?”** (see “Megaprojects and Risk”, Bent Flyvbjerg)

# Managing Risks at the Right Level



# We Must Manage Both Strategic Risk & Volatility

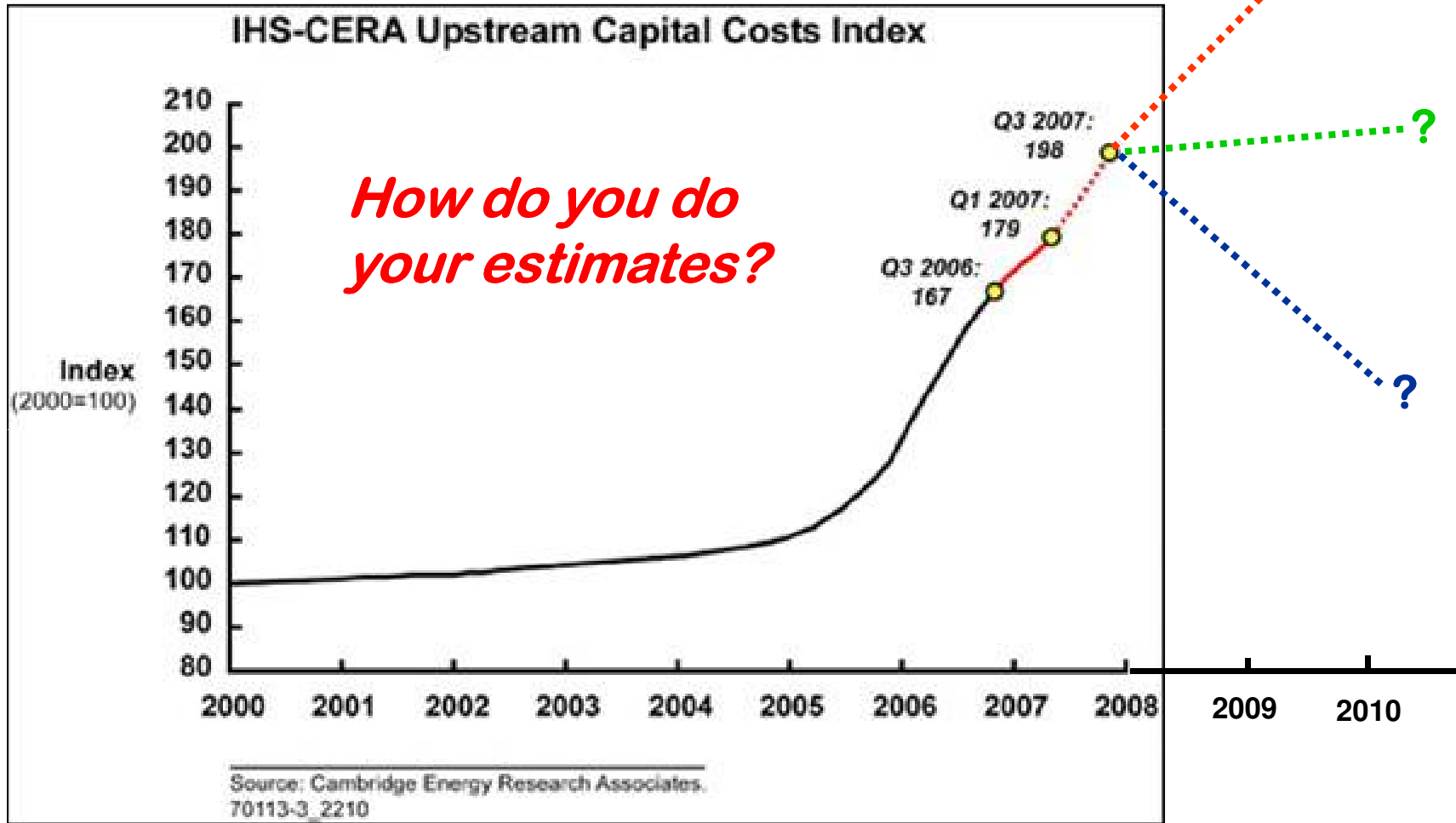


# *Are Estimating Techniques Part of the Problem?*





# What do YOU Think?



# Projects Overrun Because...

**Most organizations lack a practical and disciplined approach to understanding, monetizing and managing:**

- **Strategic Risks**
- **Volatility**

*Those that address these new aspects of Project Risk Management will improve predictability & performance.*

# A Closing Thought ...



*One of the best lessons children learn through video games is that standing still will get them killed quicker than anything else.*

*Jinx Milea, USC*