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

**Project Characteristics 2008:**
- often enterprise critical
- hostile locations; empowered NOCs
- new technology
- long time to first oil
- “mega-project” size & complexity
- contractors unwilling / unable to take project risk
- partner alignment issues

**CAPEX Investment Index**

- CAGR = 36%
- Adjusted for escalation

**IEA forecasts $22 Trillion energy industry CAPEX thru 2030 (unescalated)**
- oil & gas, coal = $10 Trillion

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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 Impact of the Highly Improbable

Nassim Nicholas Taleb
HUNTING BLACK SWANS
Are We Thinking Like Turkeys?

What is a “Black Swan”?
- An outlier “outside the realm of regular expectations”
- Carries extreme impact
- We concoct explanations to make it seem predictable once it has occurred

Thanksgiving!!!
Conventional Approach Ignores Outliers

Conventional Risk Analysis assumes outliers (i.e., “Black Swans”) and ignored (until they occur).

Conventional Risk Analysis assumes that all risks “tunnel” to an acceptable level at sanction and decrease to mechanical completion.

Strategic Risks are considered outliers (i.e., “Black Swans”) and ignored (until they occur).
Consider Kashagan (per WSJ 8/28/07)

- Shell operator for Exploration – logistics challenges etc.
- 2001: Eni=operator, 1st Oil 2005 – lack of benchmarks for estimating
- issue of artificial islands delays project
- 2004: new plan approved, 1st Oil 2008, $10G
  - 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: H2S, 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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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 Flybjerg)
Managing Risks at the Right Level

Risk

Governance / Accountability

Authority / Accountability

PMT

Tactical

Strategic

Management

PMT

- Management intervention in PMT tactics leads to internally driven risks

- Project definition
- Contractor performance
- Pricing
- Logistics

- Political
- Global economic trends
- Partner / NOC issues
- Organizational alignment

- Unmitigated strategic risks become tactical problems for PMT

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We Must Manage Both Strategic Risk & Volatility
Are Estimating Techniques Part of the Problem?
What do YOU Think?

How do you do your estimates?
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